ABSTRACT

Title of Thesis:	THOUGHTFULLY REFLECTIVE DECISION-MAKING AND CRIME TYPES: WHAT IS GENDERS ROLE?
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Thoughtfully reflective decision-making (TRDM) is a type of decision-making associated with favorable life outcomes. TRDM varies between and within individuals and, although there is evidence that TRDM is associated with beneficial choices, little research to date has examined the relationship between gender and TRDM. Using the AddHealth (public) data, this thesis investigates (1) whether TRDM is gendered; (2) how TRDM is related to delinquency; (3) whether the effect of TRDM on delinquency is moderated by gender and/or affected by offense type? Analyses reveal that particular components of TRDM are gendered and those components are related to delinquency participation. Further, although results show that utilization of TRDM is significantly different for males and females and TRDM generally is associated with a lower risk of minor delinquency involvement, neither gender nor gender*age moderates the TRDM-delinquency relationship. I thus conclude that TRDM is not a sufficient explanation for the gender gap in crime.

THOUGHTFULLY REFLECTIVE DECISION-MAKING AND CRIME TYPES: WHAT IS GENDERS ROLE?

by

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Dedication

I would like to dedicate this thesis to my family who has supported and guided me throughout this process. It is through their love and encouragement that made this thesis possible.

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I would like to acknowledge and give my warmest thanks to my chair, Dr. Sally Simpson, who made this thesis possible. It is through her expertise and advice that has carried me throughout the writing of this thesis. I would also like to thank my committee members, Dr. Sarah Tahamont and Dr. Wade Jacobsen, for their encouragement, suggestions, and hard questions. Finally, I thank my fellow peers in the Department of Criminology and Criminal Justice for their knowledge and support throughout my time in the program.

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Chapter 1: Introduction

As an extension of rational choice theory, Paternoster and Pogarsky introduced a new concept called thoughtfully reflective decision-making (TRDM) stating that "TRDM is part of what it means to be a rational person and is therefore an integral part of any rational choice theory of offending" (Paternoster and Pogarsky; p. 105; 2009). TRDM is the idea that individuals amass the available information surrounding a decision, criminal or not. Then, as rational beings, they meticulously contemplate solutions to goal attainment, use reason in their deliberation, and then retrospectively look at their decision and the thought process in making that decision to determine if it was the right avenue and endpoint (Paternoster and Pogarsky, 2009). It is believed that those who are more thoughtfully reflective in their choices are more likely to contemplate multiple ways to reach their goals, engage in a cost/benefit analysis, and then ruminate on the decision made and the outcome of that decision (Paternoster, Pogarsky, and Zimmerman, 2010). Overall, TRDM allows individuals to reflect on choices made but, consistent with the assumptions of rational choice theory (Cornish and Clarke, 1986), the utilization of TRDM will vary across persons due to biological and sociological reasons—in other words, there are constraints that affect decision-making choices. A main purpose of this thesis is to explore in greater depth where, when, and for whom such constraints manifest.

Given this intent, there are several important avenues to explore. Currently, there is a myriad of research indicating the stark differences in delinquency by biological sex[1].

[1] In this document, I cannot distinguish in the measures I am using whether biological sex or gender is captured. Therefore, I use the language of the researchers when citing their research, but I choose to use

It is undisputed that males offend at higher rates than females for all crime, but this is especially evident in violent crimes (Steffensmeier and Allan, 1996, Lauritsen et al., 2009, Nagel and Hagan, 1983, Steffensmeier et al., 2006). Despite this unwavering evidence, the intersection between TRDM and biological sex remains unclear. If biology and social factors influence levels of TRDM, it would be logical to assume that gender will moderate an individual's decision-making processes. Based on the extant gender and crime literature, we would expect females to have higher levels of TRDM, which would help explain the gender gap in crime. Further, this difference by gender is likely to be substantial. Paternoster and Pogarsky (2009) emphasize the relationship between TRDM and crime, and that there are likely to be differences between- and within-persons over time. This suggests that if there are gradations in TRDM by sex, it would result in differences in behavior, such as delinquency. This study will aid in the explanation of the robust relationship between gender and crime. Moreover, understanding how TRDM varies across persons will help to advance theory. If research reveals variation amongst people, such as biological sex, it suggests the need to theorize better how and why the constraints on decision-making operate.

As mentioned, TRDM also is expected to vary within persons over time. This raises the question as to whether the relationship of TRDM, gender, and crime varies by age. There is reason to suspect that the potential moderating relationship of TRDM and gender would be gradated by age and would vary by type of delinquency. Evidence shows that the cortex is more developed in females compared with males and this

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the term gender when describing my findings (which could result from biological sex and/or gender socialization).

difference begins in the womb (Bennett et al., 2005; Fishbein, 1992). This developmental difference is directly linked to the expedited maturation rate among females, compared to their male counterparts. Further, males are more likely to suffer from deficits in their frontal lobes (Moffitt, 1993; Bennett et al., 2005). The frontal lobe is the portion of the brain responsible for executive functions, such as decision-making. Seeing that males' cognitive functions mature at a slower rate and that they are more prone to frontal lobe deficits, we'd expect to see gender differences in decision-making skills, such as TRDM, at an early age. Moreover, TRDM is inherently age gradated, thus, it is important to understand the role that age plays in these relationships (Paternoster and Pogarsky, 2009). As literature suggests, a 12-year-olds decision-making processes are going to be vastly different from those of a 19-year-old. Consequently, as less thoughtful decision-makers, young males are more likely to be involved in delinquency than females at the same age. Consistent with these research findings, I expect that females will be more likely to utilize thoughtfully reflective decision-making at younger ages, compared to males, and, therefore, less delinquent.

Finally, there is a paucity of research that specifically explores the effect of TRDM by gender across multiple types of crime. Previous studies have explored TRDM's influence on crime types indicating that there are likely important differences in how TRDM affects the decision to engage in violence as compared to minor crime, but these studies do not analyze how this may vary by gender (Timmer et al., 2020). As studies suggest, while there are gender differences in property crimes (especially for major felonies), these differences are even more pronounced in violent crimes where females are much less likely to participate in violent offenses than males (Nagel and

Hagan, 1983). Considering TRDM's association with crime, we would expect a larger gender gap in major types of delinquency because females are more thoughtfully reflective in their decision-making, and thus, more risk averse for serious offenses (and more likely to consider the consequences). Further, there are still likely to be differences in more minor crimes, considering evidence shows that TRDM has a bigger effect on minor offenses than major offenses (Timmer et al., 2020). Based on this finding and the expectation that females are likely to be more thoughtfully reflective in their decision-making, we expect to see gender differences for more trivial crimes as well but perhaps not as great as with major crimes.

This thesis aims to fill several gaps in literature. First, it tests if the relationship between TRDM and crime is robust. Next, and the main focus of this thesis, I assess whether TRDM varies across gender. If TRDM varies across persons, as Paternoster and Pogarsky (2009) state, and TRDM is influenced by biological and contextual factors, we should see differences in the utilization of TRDM by gender reflected in delinquency participation. Lastly, this paper will investigate if TRDM and crime are moderated by gender and age. The theory does not speak to whether TRDM (and the gender and crime relationship) is robust across age and all offense types and whether the individual components of TRDM themselves are gendered. This thesis seeks to expand the concept of TRDM by incorporating gender as an influential factor in decision-making.

In Chapter two, I review the theoretical and empirical literatures on gender, age, and crime; thoughtfully reflective decision-making, and developmental criminology—concluding with four research hypotheses. Chapter three describes the data source used to test the research hypotheses, along with the variables used (including controls),

descriptive analyses, and analytic approaches. Results are discussed in Chapter 4 and, in Chapter 5, I summarize and interpret the main contributions of the thesis.

Chapter 2: TRDM, Gender, Age, and Crime

Gender and Crime

Gender is a notable predictor of criminal behavior, distinguishing participation in antisocial conduct and delinquency from at an early age (Choy et al., 2017; Bennett et al.; 2005; Rowe et al.; 1995; Mears et al.; 1998). There is strong evidence that males are more likely to engage in delinquency than females (Lauritsen et al., 2009), especially regarding violent crimes (Nagel and Hagan, 1983). These findings are not only consistent across different indicators and measures of offending but also over time and across cultures (Choy et al., 2017; Lauritsen et al., 2009; Mears et al., 1998; Hindelang, 1979; Steffensmeier and Allan, 1996).

Despite the overwhelming empirical support illustrating the gender gap in offending (Estrada et al., 2015; Smith, 2014; Lauritsen et al., 2009), there has been mixed support of the relative size of this gap. Specifically, longitudinal studies appear to show that the gender gap is shrinking over time, however, depending on the data source and type of comparison, male-female convergence due to increased female offending may be an illusion—reflecting instead changes in police willingness to arrest female offenders (Steffensmeier and Allen, 1996; Schwartz, Steffensmeier, and Feldmeyer, 2009), the type of data utilized (victimization versus arrest data), type of crime, or greater changes (i.e., reductions) in male vis-à-vis female offending patterns (Beatton et al., 2018). Offender self-reported data show more gender convergence than do official criminal justice data sources, but not for serious property or violent crime. Regardless of whether and where the gap is narrowing, differences in offending endure (Nagel and Hagan, 1983;

Steffensmeier et al., 2006). Crimes committed by males proportionally dwarf those committed by females (Savolainen et al., 2017).

Although criminologists have, over the past 40 years, increasingly focused on gender in their work, theoretical explanations for gender all too often remain impervious to female experiences (Chesney-Lind and Shelden, 1992; Belknap et al., 1997; Chesney-Lind and Okamoto, 2001; Chesney-Lind, 2010). Instead of reformulating theories developed to explain male behavior, scholars tend to adopt the same theories to explain female offending despite research showing that these approaches are a poor fit or irrelevant as to the mechanisms regarding how and why women offend (i.e., they "add gender and stir"). Additionally, there is some evidence for cognitive and developmental differences by sex (Bennett, Farrington, and Huesmann, 2005; Bennett et al., 2005; Moffitt, 1993; Ross and Fabiano, 1985).

Age, Development, and Crime

While being female is negatively associated with delinquency, it is likely that developments in cognition act as a mediator in the relationship between gender and crime (Bennett et al., 2005). As noted above, it is believed that cognitive developments are influenced by biological and social processes and exposure, which, in turn, impact criminal activity (Bennett et al. 2005, Chess and Thomas, 1984; Prior et al, 1993; Taylor, 1985).

The frontal lobe is in charge of executive functions, which have "implications for social judgment, self-control, responsiveness to punishment, and ethical behavior" (Moffitt, 1990; p. 115). Deficits in the frontal lobe affect an individual's ability to

understand ethical decisions and the consequences of choices and actions (Moffitt, 1990). Additionally, the left hemisphere in the brain is linked to language development, thus, the utilization or deficits to this area in the brain produce difficulties in following verbal instructions (Moffitt, 1990; Gross, 1996; Medin and Ross, 1997; Bennett et al., 2005). Fishbein (1992) found that males are more likely than females to encounter delayed development in their left hemisphere, leading to learning and language disabilities. Further, females are prone to use both hemispheres of the brain, while males rely on the left hemisphere. Using both the left and right hemispheres is likely to enhance social and reasoning skills (Bennett et al., 2005; Ariniello, 1998; Caplan et al., 1985).

Deficits in these areas of the brain can be linked to delayed maturation among males at a young age (Fishbein, 1992). The maturation rate influences social cognitive processing skills, where females are likely to gain these abilities earlier in age. These skills act as a protective factor to neurodevelopmental disorders, and influence socialization, reasoning, and problem-solving (Ross and Fabiano, 1985). This puts females at a "maturational advantage", making them less vulnerable than males at experiencing complications in brain developments (Bennett et al., 2005; p. 275). Furthermore, males are more likely than females to suffer from deficits in the frontal lobes, thus leading to problems with the executive functions mentioned above (Bennett et al., 2005). It is found that lesions within the frontal lobe increases violent tendencies by 10-20% (Reddy et al., 2018; Brower and Price, 2001). It is also likely to lead to anti-social personalities, behavioral issues, and lack of social cues (Reddy et al., 2018; Glenne and Raine, 2014; Aguiar, 2013). Research also indicates that this affects an individual's

ability to learn from mistakes made and decision-making skills (Bechara et al., 2000; Damasio, 1994).

Given these findings, we would expect to see a large gender gap in reasoning and decision-making abilities among youths which, in turn, leads to anti-social behaviors, including participation in criminal activities. While this gender gap exists regardless of age, it is likely to be more pronounced as the developmental deficiencies manifest. Thus, based on the developmental and gender literatures, there are apt to be different levels of thoughtfully reflective decision-making among males and females at an early age. Specifically, females are more likely to employ TRDM at younger ages than are males.

Rational Choice Theory

In 1968, Becker introduced an economic approach to crime in which he theorized individuals as rational agents who make decisions about criminal participation out of self-interest. He relates this process to any other economic cost/benefit analysis, known as the expected utility model (Becker, 1968). Overall, rational choice theory "assumes that offenders seek to benefit themselves by their criminal behavior; that this involves the making of decisions and choices" (Clarke and Cornish, 1985, p. 933). It presumes that each individual is a rational-actor and is making individual choices when deciding whether or not to commit a crime. There is a cost-benefit analysis where the costs and rewards of committing the crime are weighted. If the marginal benefits outweigh the costs, then the individual will choose to offend since it is the best possible outcome (Clarke and Cornish, 1985; Becker, 1968, McCarthy, 2002). This process that Becker (1968) describes has largely been uniformly attributed to the general population.

Despite the utility of rational choice theory for accounting for offending differences across populations, there is a tendency, consistent with criminological theory more broadly, to only study this theory by using samples of males *or* by simply adding gender as a control variable (Tibbetts and Herz, 1996). This leads to half of the population left unstudied and misses whether the theory adequately accounts for similarities and differences in male and female decision processes. The gender and crime literature suggests substantive gender variation in decision-making and that the source of this variation deserves systematic exploration.

The deterrence literature, for example, has shown how gender conditions risk/benefit analyses in crime decisions. Specifically, studies have explored gender differences regarding perceived formal and informal consequences (Tibbetts and Herz, 1996; Finley and Grasmick, 1985; Miller and Simpson, 1991; Grasmick et al., 1993). Females are socialized to care about others needs and fear being taken from loved ones (Steffensmeier and Allan, 1996). This is likely to influence their decision-making considering the perceived consequences of bad choices. Based on differential socialization, females will be subject to more prosocial informal controls than males which should influence their propensity to offend (Miller and Simpson, 1991). In particular, females socialized in this way should be more likely to fear law-breaking and perceive a high risk of formal and informal sanctions. However, this relationship is likely to vary by offense type.

For instance, in their study of courtship violence Miller and Simpson (1991) found that males had higher levels of risk perception and fear of breaking rules. The authors suggest that their results may be explained by the fact that neither females nor

males in their study felt that female acts of violence in a courtship situation were consequential or serious—thus affecting assessments of risk. Another explanation may lie with the fact that males are more experienced offenders than females and their experiences with crime (as well as females' lack of experience) affect their respective offending calculus (Piquero et al., 2011). In particular, inexperienced females should be more likely to think their offending would be discovered and therefore perceive a high risk of formal and informal sanctions. In their survey study of deterrence, Finley and Grasmick (1985) found that women reported higher levels of perceived informal costs, such as shame and embarrassment, as well as higher perceived formal costs. Similarly, Tittle (1980) found that, compared to males, females reported higher levels of perceived informal costs across a host of delinquent behaviors. These results provide further support for the claim that females are likely to be heavily affected by the stigmatization that accompanies formal sanctions.

Despite extant evidence that there are perceived sanction risk differences by gender, how perceptions vary by crime type is under-explored. For instance, Miller and Simpson (1991) explore only one type of crime, courtship violence. This is a highly stigmatized offense. In their study, male and female survey respondents viewed female violence in the relationship as an anomaly and, if it did occur, something to be discounted. In other words, female on male violence was downplayed by both partners. On the other hand, violence against women by male partners was categorized as dangerous and consequential, therefore higher perceived risk. Utilizing courtship violence when investigating gender differences in crime shows that males and females view and interpret risks and consequences differently, by crime type. Moreover, the

sample in this research study consists of non-randomly selected college students. This creates an issue with generalizability considering that these respondents are a niche population. For one, the fact that these individuals are in school at a college level biases the sample. As research indicates, education predicts delinquency, where those who go to school are less likely to offend (Wiatrowski et al., 1981). Specifically, dropping out from high school is a notable risk factor of delinquency (Ford and Schroeder, 2010). Thus, we can infer that these individuals may have different risk perceptions than a broader population sample.

In addition, Smith and Paternoster (1987) explore the participation and frequency of marijuana use among males and females and found no gender differences in the relative explanatory power of key variables in traditional theories of deviance, including the rational choice perspective. Although marijuana use is a minor form of offending, they suggest that similar results would emerge for more serious offenses. Evidence, however, has shown otherwise. Specifically, males are more likely to be involved in serious crimes, and this is where the gender gap in crime is the most significant (Steffensmeier and Allan, 1996).

Lastly, and most importantly, these studies have applied rational choice variables that focus on risk-perception (e.g., formal and informal sanctions), rather than weighing the costs and benefits together. This focus diverges from Becker's initial economic model where individuals weigh the marginal costs and benefits of making a decision, whether it is criminal or not. It is not exclusive to the perceived threat of sanctions but also incorporates the benefits of offending, as well as the costs of not. Furthermore, recent literature in rational choice has expanded this theory by incorporating thoughtfully

reflective decision-making, which is likely to reveal observable gender differences in general decision-making.

Thoughtfully Reflective Decision-making

In response to critics of rational choice theory, McCarthy (2002) suggests that the approach contributes to criminology by assigning individuals more agency in decision making compared to existing perspectives (McCarthy, 2002). Paternoster and Pogarsky (2009) expand on this additive quality by arguing that "thoughtfully reflective decision-making" is an essential element of human agency and that offenders rely on a cost-benefit analysis for *both* crime and non-crime (Paternoster and Pogarsky, 2009; McCarthy, 2002). This is a critical point because it highlights that cognitive processes in decision making include criminal and non-criminal activities. Paternoster and Pogarsky (2009) also note that McCarthy's view on individual decision-making "grants persons more human agency" (Paternoster and Pogarsky; p. 104, 2009; McCarthy, 2002). Meaning, each person is responsible for their own decision-making, and when they make choices, they are "enforc[ing] these choices on the world… therefore [they do not] simply respond to the roles and institutions they are involved in, but create those roles and institutions, thereby enforcing their will" (Paternoster and Pogarsky, 2009; p. 105).[2]

Paternoster and Pogarsky (2009) define TRDM as:

> the tendency of persons to collect information relevant to a problem or decision they must make, to think deliberately, carefully, and thoughtfully about possible solutions to the problem, apply reason to the examination of alternative solutions, and reflect back upon both the process and the outcome of the choice in order to

[2] One of the assumptions of rational choice is that it assumes a rational actor, indicating that we are responsible for decision-making, but there are individual and structural factors the influence choices as well.

> assess what went right and what went wrong (Paternoster and Pogarsky, 2009; p. 104).

Those with high levels of TRDM are thoughtful because they are contemplative and introspective when making their decision and they are reflective because they can retrospectively assess the decision made. These individuals are then capable of explaining their thought process and what constitutes beneficial decisions (Paternoster and Pogarsky, 2009). Importantly, Paternoster and Pogarsky (2009) suggest that, if TRDM is assumed to produce beneficial decision-making, then it is likely to result in favorable life outcomes in the short- and long-term (Paternoster and Pogarsky, 2009; Byrnes, 2002).

TRDM overlaps with rational choice in its claims that those who are thoughtfully reflective are rational humans exercising agency (Louderback and Antonaccio, 2017; Paternoster and Pogarsky, 2009). Paternoster and Pogarsky (2009) explicitly identify two elements of rational choice theory that encompass TRDM. Those that are thoughtfully reflective weigh the costs and benefits in decision-making and apply human agency (Louderback and Antonaccio, 2017; Paternoster and Pogarsky, 2009).

According to Paternoster, Pogarsky, and Zimmerman (2011), beneficial decision-making leads to favorable life choices. They also claim that TRDM varies across persons, where some individuals are likely to be more skilled in decision-making than others. It varies within individuals over-time, meaning that acquiring TRDM comes with age. However, it may be that TRDM is gradated by experiential updating (Anwar and Loughran, 2011). This is where individuals will update their beliefs and thought processes based on information acquired through their experiences (Anwar and Loughran, 2011). Lastly, it varies between instances where not all decisions made will be thoughtfully reflective (Paternoster, Pogarsky, and Zimmerman, 2011). Paternoster and

Pogarsky (2009) make note that not all decisions require careful deliberation. In fact, many decisions are made without intention or purpose, and, rather, these decisions "are made on the basis of intuition, habit, emotions, or one's moral beliefs" (Paternoster and Pogarsky, 2009; p. 105; Kahneman, 2003; Camic, 1986; Turner and Stets, 2005; Etzioni, 1988). An individual can be thoughtfully reflective in their decision-making, especially important ones, but decisions still can be made based on immediate gratification, routine, and 'heat of the moment' decisions (Paternoster and Pogarsky, 2009; p. 110; Mayamek, 2015). These decisions are considered impulsive rather than deliberate. Though, this still differs from self-control in that self-control is a "consistent pattern of behavior that is less varying over context", meanwhile a person can be thoughtfully reflective in some situations and impulsive in others (Paternoster and Pogarsky, 2009; p. 110).

Paternoster and Pogarsky (2009) worked to operationalize human agency by defining TRDM with four measures:

1. Collecting information pertaining to a problem that requires a decision
2. Thinking of alternative solutions to the problem
3. Systematically deliberating over how to determine which alternative might be best
4. Retrospectively analyzing how good a problem solver one was in the situation

These four measures, together, encompass favorable decision-making and demonstrates human agency (Paternoster and Pogarsky, 2009). Meaning that if an individual does not utilize all four traits in their decision-making, they are not employing thoughtfully reflective decision-making skills.

TRDM, Crime, and Gender

Considering TRDM is a novelty within criminology, there has been relatively little research on the relationship between TRDM and crime. Some scholars, however, have begun exploring this correlation through the utilization of AddHealth data (Louderback and Antonaccio, 2017; Paternoster and Pogarsky, 2009; Paternoster, Pogarsky, and Zimmerman, 2011; Maimon, Antonaccio, and French, 2012). Paternoster et al. (2011) found that TRDM does predict pro-social life outcomes in the short- and long term. They also found that TRDM influences such life outcomes because those who are thoughtfully reflective are likely to acquire human, social, and cultural capital (Paternoster, Pogarsky, and Zimmerman, 2011). Research also shows that TRDM has consistent effects across different types of crime. For instance, Maimon et al., (2012) find that those with low TRDM are at risk for adolescent violence, while Louderback and Antonaccio (2017) report that TRDM is a predictor of cyber deviance and victimization.

While research is limited on TRDM and crime, the existing literature on TRDM, crime, and gender is even rarer. Specifically, only two studies have explored how TRDM and crime are impacted by gender. Louderback and Antonaccio (2017) investigated the effects of TRDM on computer-focused cyber deviance across gender and age. They found that the impact of TRDM on computer-focused cyber deviance is invariant across gender and the influence of TRDM on cybercrime diminishes with age. Despite these results, there are several critiques of this research. For one, gender was used as a control variable which, as mentioned previously, does not drill down into whether and how female decision processes may differ from males based on their life experiences. Additionally, cybercrime significantly differs from general delinquency. Cybercrime is

specific to a certain demographic that has access to technology and possesses the skills needed to commit cybercrimes. Another study by Timmer, Antonaccio, and French (2020) examines how hot triggers, including sleep problems, depression, and strain, condition TRDM's effect on adolescent crime. This study explores the hot/cool perspective where "the cool mode of processing involves a logical, systematic, deliberate, and future-oriented analysis of information and calculations of possible costs and benefits of actions", (i.e., TRDM), while "the hot mode of processing is non-calculative, more immediate, and mostly unconscious" (Timmer at al., 2020; p. 2). They reiterate that there is limited research exploring how the effect of TRDM on crime varies across groups, including gender. Despite this statement and the call for more research, they do not explore this avenue. Rather, like others before them, they incorporate gender as a control variable.

TRDM, Gender, and Crime Types

To date, there is no existing research that specifically explores the effect of TRDM across multiple types of crime and whether effects vary by gender. While the research examining TRDM demonstrates that those who are less thoughtfully reflective are more involved in criminal activity (Paternoster and Pogarsky, 2009; Paternoster, Pogarsky, and Zimmerman, 2011), these studies rely on a general delinquency measure, which fails to take into consideration whether the effects of TRDM on specific types of deviant behavior operate in a similar manner.

Paternoster and Pogarsky (2009) find that those who are more thoughtfully reflective are less likely to commit both violent and property crime. They do not,

however, explore how the effect differs between the types of crime despite evidence suggesting that, while all types of offending are higher for males than females, this is especially evident for violent crimes than less serious offenses, such as property crime (Steffensmeier and Allan, 1996). Timmer et al. (2020) recognize this gap in the literature and argue that cool and hot modes may have different effects depending on the type of crime. Specifically, violent crimes are likely to be committed by those in hot states which include feelings of passion, rage, and humiliation (Timmer et al., 2020; Katz, 1988; Palermo and Kocsis, 2005; Scheff and Retzinger, 1991). Thus, considering TRDM is a cool mode of processing, it may not have as much as an effect on violent crime, especially for males who tend to be more "hot". Furthermore, property crimes demand more thought and preparation, thus the cool mode (i.e., TRDM) may have a bigger effect on property crime. Both studies indicate that there are likely important differences in how TRDM affects the decision to engage in major as compared to minor crime, but none of the studies analyze how this may vary by gender.

Despite the utility of the rational choice perspective and the additive value of TRDM, there are several unexplored issues in this literature. In particular, despite the well-established relationship between gender and crime, little is known about potential differences in the decision-making process. Namely, even though Paternoster and Pogarsky (2009) introduced biological differences, it is unclear whether TRDM varies by gender. If empirical evidence demonstrates that male's cognitive skills are delayed and, therefore, less utilized at younger ages, we would expect to see that younger females are more apt than males at the same age to employ thoughtfully reflective decision-making (Ross and Fabiano, 1985; Bennett et al., 2005). Moreover, whether the relationship

between TRDM and gender is robust across the type of crime is unknown. The extant literature suggests that differences in TRDM may exist across gender, and these differences can contribute to the gender gap in crime.

This paper seeks to fill this gap and several issues related to gender: (1) Does TRDM help to explain the gender gap in crime? (2) Does it explain the gap equally well for different types of crime? (3) Does the TRDM instrument itself differ by gender? For instance, one could imagine that the component asking whether "alternatives to the problem have been considered" might vary considerably given that access to alternatives such as social support differ considerably by gender. This analysis will provide insight into these important questions. We know too little about how females think about crime and their participation in it. This thesis moves gender to the center conceptualizes gender as an influential component of the decision-making process. More specifically, this paper aims to test the following hypotheses:

Hypothesis 1: TRDM will negatively influence delinquency participation.

Hypothesis 2: Gender will moderate the relationship between TRDM and the likelihood of engaging in criminal activity.

Hypothesis 3: The relationship between TRDM and delinquency will be gradated by age and moderated by gender.

Hypothesis 4: The relationship between TRDM and gender will vary by crime type.

Chapter 3: Data and Methods

Current Study

While we know that females are less likely to commit crime than males (Steffensmeier and Allan, 1996), less well-understood are the specific mechanisms that underlie these gender differences. The goal of this paper is to advance theory by applying the concept of thoughtfully reflective decision-making (TRDM) to the gender gap in offending. The theory attributes the participation difference to female and male thought processes (Paternoster and Pogarsky, 2009) but this relationship has yet to be subjected to in-depth inquiry.

Unlike previous investigations of TRDM, in this study, gender is not treated as simply a control variable, but rather as a contextualizing factor —that female and male experiences constitute and are reflective of gendered systems of power and control (Ridgeway and Lovin, 1999). The contextual and developmental differences should affect decision-making processes and hence criminal participation decisions. It is therefore important to understand the underlying processes of gendered decision-making (Powell and Ansic, 1997; Delaney et al., 2015). In adding gender as a moderating mechanism, this paper will (1) reveal whether women have higher levels of TRDM and thus influencing the likeliness to engage in criminal activity, (2) examine whether the relationship between TRDM and gender vary by age; and (3) assess whether TRDM is a consistent predictor of engaging in illegal behavior across offense types. If differences are observed, I will examine the extent to which particular dimensions of TRDM are gendered. Overall, this study will add to the existing literature on TRDM, TRDM and

crime, as well as drill down on potential mechanisms that underlie the gender gap in crime.

Data and Sample

This study utilizes the National Longitudinal Survey of Adolescent Health (AddHealth)[3]. AddHealth data is longitudinal, multi-wave, panel study that employed in-school interviews of approximately around 90,000 students between the grades of 7 and 12 from 1994 to 1995. The sample is originally drawn from 132 high schools and middle schools which were stratified to have adequate representation of the type of school, region, race, size, and urbanization (Paternoster and Pogarsky, 2009). Those that participated in the in-school interview were then randomly selected for an in-home interview that took place in 1995 with a guardian present alongside the student.-Wave II then took place from April to August 1996 consisting of 15,000 in-home interviews from participants in Wave I. These students then completed the final interview 5 to 7 years later in Wave III.

This study specifically utilizes the public-use dataset, which is 50% of the original sample, at random, and 50% of oversampled African American youths who have at least one parent with a college education. In this sample, Wave I includes approximately 6,500 respondents in grades 7 to 12. Wave II consists of a random sample of those that participated in Wave I a year later, with 4,834 respondents (about 75% of the original sample) . Individuals who did not respond to relevant questions pertaining to the

[3] For more information on AddHealth data, see Harris, K.M., Halpern, C.T., Whitsel, E., Hussey, J., Tabor, J., Entzel, P., and Udry, J.R. (2009). The National Longitudinal Study of Adolescent Health: Research Design http://www.cpc.unc.edu/projects/addhealth.

delinquency and TRDM measures were excluded from the analyses. Once these respondents were taken out, the sample size decreases to 2,932 respondents. Given the interests of this study, I rely on data from Wave I and Wave II. Because these two waves collect data within a year of one another, they tap into decision-making at similar periods of time in adolescence. Because the in-home interviews collect a greater breadth of information and questions are consistent across waves, the in-home interviews are utilized instead of the in-school data.

AddHealth data, and, specifically, Wave I and Wave II, are sufficient to test the four hypotheses above. First, the data must have variables that adequately measure TRDM. The survey questions in Wave I include several questions that contribute to the construct of thoughtfully reflective decision-making. Further, this is the dataset and constructs from the original literature on TRDM (Paternoster and Pogarsky, 2009), making this study comparable to previous research. Next, the data capture general delinquency, as well as specific types of delinquency. This allows me to investigate how gender moderates TRDM and whether it manifests differently by age and by crime type, as expected. The sample consists of youths age 12-19 and thus potential differences in TRDM can be broken down and examined by age groups (12-14; 15-17; and 18-19). Further, major and minor crimes require different thought processes and reflection[4]. Based on the ample number of variables that are critical in investigating the questions of interest and the population of respondents, AddHealth data meet the study's requirements.

[4] Descriptive statistics for all variables included in the analytic models are reported in Table 1.

Measures

Dependent Variable(s)

General Delinquency. To measure delinquency, Paternoster and Pogarsky (2009) constructed a general delinquency measure. In wave II, respondents were asked: "In the past 12 months…" have you damaged property, stole something worth more than $50, went into a house or building to steal something, used or threatened to use a weapon to get something from someone, sold marijuana or some other drug, stole something worth less than $50, and hurt someone badly in a fight. This general delinquency measure is a composite of property and violent crime. The authors then formulated each question into a dichotomous variable, where (0) indicated that the respondent had never committed that particular crime, and (1) implied that the respondent had committed that particular crime at least once. These dichotomized variables formed an omnibus variety scale between 0 and 7, indicating the types of delinquent behavior the respondent committed. To capture current delinquency, this exact scale is created from delinquency measures in Wave II. This scale is then coded as a categorical variable (1/0), where 0 is equal to committing 0 of the crimes and 1 means the individual committed at least one of the crimes. The majority (94%) of the sample committed at least one of these crimes.

Crime Type. Males and females are both more likely to commit minor property and drug offenses than major crimes including robbery and weapon use, but there is still a significant gender gap in serious offending. Using the FBI's part 1 and part 2 offense categories and mapping them on to available AddHealth measures, major offenses (part 1) include robbery and burglary while minor offenses (part 2) consist of larceny-theft

(shoplifting and stealing). To construct these two crime type variables, I use four questions in Wave II that capture major and minor crimes.

To measure robbery, the respondents were asked "In the past 12 months how often did you use or threaten to use a weapon to get something from someone?" To capture burglary, respondents were asked "In the past 12 months how often did you go into a house or building to steal something?" For both questions, they were to indicate if they did (0) Never; (1) 1 or 2 times; (2) 3 or 4 times; or (3) 5 or six times. Like the general delinquency measure, these two variables were dichotomized and were labeled (0) if they never committed the crime, and (1) if they have committed the crime at least once. These measures were then summed to form an omnibus variety scale between 0 and 2, where (0) meant the respondent had committed neither of the crimes, (1) indicates one of the crimes were committed, and (2) implies both crimes were committed. Then, a categorical variable (1/0) was formed indicating (1) at least one major crime was committed or (0) the respondent did not participate in any major crimes. Very few in the sample (0.06%) committed a major offense.

[Insert Table 1 about here]

To best capture minor offenses, shop lifting, and stealing were reported. Respondents were asked "In the past 12 months how often did you" take something from a store without paying for it and steal something worth less than $50, for shoplifting and stealing respectively. Again, respondents were to report if they did (0) Never; (1) 1 or 2 times; (2) 3 or 4 times; or (3) 5 or six times. As explained above, these responses were

dichotomized and then summed together to suggest that the respondent had never committed either of the crimes, committed at least one, or engaged in both crimes. Like general and major delinquency, this variable is then as a categorical variable (1/0), where 21% of the sample committed a minor offense.

Independent Variable(s)

Thoughtfully Reflective Decision-making. As noted above, Paternoster and Pogarsky (2009) (See also Paternoster, Pogarsky, and Zimmerman, 2011) aimed to operationalize a thoughtfully reflective decision-maker and to understand human agency as part of personal identity, current and future (Paternoster and Pogarsky, 2009; p. 121). To be a thoughtfully reflective decision-maker, that individual should have the capacity to collect all information significant to the decision, be able to think deliberately, carefully, and thoughtfully about other options to their decision, administer reasoning to these possible options, and retrospectively deliberate on the decision made, and whether it was right or wrong. These four steps epitomize a thoughtfully reflective decision-maker. To capture these four steps, there were four statements required to answer: (1) When you have a problem to solve, one of the first things you do is get as many facts about the problem as possible; (2) When you are attempting to find a solution to a problem, you usually try to think of as many different approaches to the problem as possible; (3) When making decisions, you generally use a systematic method for judging and comparing alternatives; (4) After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong. Respondents were asked to rate from (1) strongly disagree to (5) strongly agree on these four statements. These answers were then summed, creating an

index from 4 to 20; 4 being equivalent to a less reflective decision-maker. [5]The variable TRDM has a mean of 15.10 (SD=2.46) for females and 15.25 (SD=2.51), indicating that, on average, female and male respondents were considered thoughtfully reflective in their decision-making.

Moderator(s)

Gender. To understand how gender moderates the relationship between thoughtfully reflective decision-making and criminal pathways, the biological sex of respondents is included in the analysis. Sex is coded as a dichotomous variable where 1 = female and 0 = male. Within the sample, 52% of the sample are female and 48% are male. Descriptive statistics by gender can be seen in Table 2.

Age[6]. Given that females are more cognitively developed than males at a young age, one would assume that they are more thoughtfully reflective decision-makers at an earlier age. Differences in being thoughtfully reflective should then level out as males and females become older (Ross and Fabiano, 1985; Bennett et al., 2005). To investigate potential differences in TRDM between males and females, age categories have been created and incorporated into the analysis. Age is categorized into three groups: 12 – 14, 15 – 17, and 18 – 19. Descriptively, 28% of the sample fall between the ages of 12 and

[5] Those that refused to answer, responded they did not know, or was not applicable, were excluded from the analyses. According to Paternoster and Pogarsky (2009), in order to be a thoughtfully reflective decision-maker, the individual needs to encompass all four steps listed above. Thus, those that did not answer all four questions should not be included in the analysis.

[6] Those that were outside the ages of 12 - 19 were excluded. These respondents were not age normative for grades 7 - 12 (see Paternoster and Pogarsky, 2009)

14, about 61% are between 15 and 17, and 11% are either 18 or 19. Overall, the average age is 16 years old (SD=1.55).

Control Variable(s)

Social controls. According to Hirschi's (1969) social bond theory, those who have strong bonds, whether it be attachment, commitment, involvement, or belief, are less likely to offend. He argues that these bonds act as a restraint from committing crime. Moreover, Sampson and Laub (1993) argue that social bonds affect a youth's propensity to offend. Among these bonds, attachment is heavily influential among females than commitment, involvement, or belief. The relationship between attachment to school and gender is crucial, especially among females. The stronger bond a female has to their school and schoolwork, the less likely that individual is to offend (Friedman and Rosenbaum, 1988). Furthermore, males and females are socialized differently from a young age based on gender norms. These differences in gendered socialization result in females more likely to bond to their peers than males (Heimer and Coster, 1999; Mears et al., 1998; Steffensmeier and Allan, 1996). Moreover, females endure higher levels of controls within their home, and are, therefore, likely to have closer bonds to their families (Heimer and Coster, 1999). Based on Hirschi's (1969) social bond theory, an offender's lack of attachment to school, parents, and peers would be an explanation for why the offender committed the crime and would discount thoughtfully reflective decision-making as an explanation in sex-differences. Considering social controls have been shown as influential in delinquency, it's imperative to rule out social controls as an

explanation for offending behavior. Within the data, there are measures for attachment to school, parents, and friends.

In Wave I of the in-home interviews, there are variables that tap into the strength of attachment the respondents have to their school, family, and friends. Measured on a Likert scale, respondents were asked how much they felt their parents and friends cared about them, where (1) not at all; (2) very little; (3) somewhat; (4) quite a bit; (5) very much. Attachment to school was quantified by asking the respondents how much they agree to the following question: "You feel like you are part of your school". This was on a scale of (1) strongly disagree; (2) disagree; (3) neither agree nor disagree; (4) agree; (5) strongly agree, with a mean of 3.95 (SD=0.96). Attachment to parents has a mean of 4.83 (SD=0.512) and attachment to friends has a mean of 4.3 (SD=0.75).

Self-control. In Paternoster and Pogarsky's (2009) paper first introducing TRDM, the authors emphasize that self-control and TRDM are different theoretical constructs for several reasons. The first is that operationalization of self-control, where indicators of low self-control are "impulsivity, simple tasks, risk seeking, physical activities, self-centered, and temper", are unlike decision-making (Paternoster and Pogarsky, 2009; p. 109). Next, according to Gottfredson and Hirschi (1990), self-control is established at age 10, whereas TRDM can improve with age through maturation and education. Additionally, self-control is invariant across behaviors while TRDM can be employed depending on the decision. Lastly, the measure employed for self-control differs from the four indicators of TRDM. While Gottfredson and Hirschi (1990) argue that self-control is a predictor of favorable life outcomes, indicating that TRDM is not significant in

predicting delinquency, Paternoster and Pogarsky (2009) maintain they are separate. Thus, self-control, as a control variable, is crucial in determining TRDM's role in delinquency patterns.

Paternoster and Pogarsky (2009) utilize a self-control variable formulated by Hirschi (2004). Hirschi redefined self-control as the ability to contemplate all costs with choices made (Paternoster, Pogarsky, and Zimmerman, 2011; See also, Piquero and Bouffard, 2007). If an individual were to have low self-control, they would lack the ability to contemplate consequences, short-term or long-term (Paternoster, Pogarsky, and Zimmerman, 2011). To evaluate self-control, in Wave I, respondents were asked: "When making decisions, you usually go with your 'gut feeling' without thinking too much about the consequences of each alternative." This was measured on a five-point scale from "strongly disagree" to "strongly agree" with a mean of 3.04 (SD=1.123).

Parent Education. The method of oversampling African Americans with at least one parent with a college education is likely to affect the delinquency of the African American sample, and thus cannot be generalizable. According to research exploring how parent education influences child achievement, it was found that parent's education and years of schooling were indicators of children's achievement (Davis-Kean, 2005). Given these findings, this oversampling method is likely to skew results and impact generalizability. The mother and father's education was dichotomized into either completing college (or more) or achieving a lower education (or none). 33% of the youth's mothers and 36% of their fathers in the sample achieved a college education or more.

Demographics. Respondent's ethnicity and race were included as controls because there is evidence to suggests that these variables influence decision-making (Rocque et al., 2015; Paternoster and Pogarsky, 2009; Paternoster, Pogarsky, and Zimmerman, 2011). Race and ethnicity were coded together to create a race by ethnicity variable. Respondents were categorized by White and Hispanic (5%), White and non-Hispanic (67%), Black and Hispanic (.14%), Black and non-Hispanic (15%), Other and Hispanic (5.6%), or Other and non-Hispanic (8%).

Descriptions for all variables used in the analytic models, broken down by gender, are reported in Table 2.

[Insert Table 2 about here]

Analytic Plan

First, I discuss bivariate correlations between key dependent and independent variables such as delinquency, minor and major delinquency, gender and age. Then, considering this analysis, I estimate whether biological sex and age influence the relationship between thoughtfully reflective decision-making and delinquency (general, minor, and major) using multiple regression analyses.

To test research hypotheses, the first two regression models explore how the interaction between gender and thoughtfully reflective decision-making influences participation in general delinquency. I estimate a full model and then two separate models for males and females regressing delinquency on TRDM (and relevant control

variables)[7]. I then compare the slopes of the coefficients between males and females for TRDM and age to assess whether there are differences consistent with the presented hypotheses. In the next set of regression models, I examine whether TRDM varies by gender and age groups. Finally, the last group of regression models investigate possible moderating effects by crime types. Specifically, the regressions will test whether a relationship between thoughtfully reflective decision-making and gender is associated with the risk of major crime and then minor crime participation. Again, for each dependent variable, there will be two OLS regressions, one for males and one for females. Each regression model will be run with robust standard errors. The controls explained above will be included in all OLS regressions. I will then use the statistical test below (Paternoster et al., 1998) to compare the overall regression variables for males and females. This equation is illustrated in Equation 1[8]. If there are gender difference, I will deconstruct the TRDM scale items to see if components of the scale are gendered.

$$Z = \frac{b_1 - b_2}{\sqrt{SEb_1^2 + SEb_2^2}} \qquad (1)$$

[7] Since I am testing for the possibility of the relationship in both directions, I will be using two tailed tests for gender and age.

[8] As noted by Paternoster et al. (2009), this equation applies to larger sample sizes (i.e. n > 1000).

Chapter 4: Results

In order to determine whether issues of multi-collinearity presented a concern, correlation matrices are presented (see Table 3). Table 3 shows that the independent variables are not highly correlated, indicating that the results of the multivariate OLS regression models are capturing the construct of thoughtfully reflective decision-making independent from the other variables. That said, the direction of the relationships between thoughtfully reflective decision-making and delinquency measures are noteworthy. Consistent with the theoretical prediction, as well as the first hypothesis, TRDM is negatively related to general delinquency as well as minor and major delinquency. In addition, being female has a negative relationship with delinquency, as expected, but female status also is negatively related to TRDM. Further, there age does not moderate TRDM and delinquency, which is inconsistent with expectations.

[Insert Table 3 about here]

The next set of tables report results for the predictor variables, with and without control variables included in the models[9]. In Table 4, where delinquency is a binary measure, models 1, 2, and 3 illustrate the multivariate relationship between delinquency and the main predictor variables. These first three models show that TRDM is unassociated to delinquency for both males and females. Results indicate that being

[9] Because some research has found TRDM and social control to be overlapping concepts, models were tested with and without the social control variables. The only notable difference observed is that female's participation in major delinquency becomes significant in the major delinquency model. Given that females do not participate in a great deal of serious crimes, this change does not alter results greatly. Thus, models are not over-controlling for social control.

female also is associated with being more delinquent ($p<.01$). In the full model (model 1), all age groups are unassociated with delinquency.

Models 4, 5, and 6 in Table 4 show that the coefficient for the relationship between TRDM and delinquency is not statistically significant. This does not support hypothesis 1. Moreover, we also can see in model 4 that being female is positively associated with delinquency risk ($p<.01$). Other than this association with delinquency, little else is significant in the model. However, slope comparisons do show significant gender differences in how ages 18-19 (relative to ages 12-14), school attachment, and peer attachment are related to delinquency (model 7). None of these coefficients have a significant effect on delinquency risk for males or females.

All in all, these findings do not support hypothesis I that TRDM inhibits delinquency and does not support hypothesis II that gender influences the relationship between TRDM and criminal activity.

[Insert Table 4 about here]

To further investigate whether age moderates the relationship between TRDM and delinquency, multivariate analyses are conducted wherein the specific age categories are interacted with TRDM. These analyses are reported in Table 5. Recall that extant developmental literature reveals earlier biological maturation for girls than boys. Thus, the expectation is that TRDM will manifest earlier with girls and this gender effect might

even out as boys mature. Results presented in Tables 5[10] show no significant interaction between any of the age categories and TRDM in all models, therefore finding no support for hypothesis 3[11]. Looking next at the control variables, there are significant gender differences for self-control for age groups 15-17 and 18-19 and peer attachment for all age groups on criminal activity (models 4, 8, and 12). Generally, self-control matters more for males than for females, where having more self-control is negatively related to delinquency risk. For all ages, peer attachment for males is negatively associated to delinquency but positively related for females.

[Insert Table 5 about here]

Next, results are reported for specific types of delinquency. The models reported in Table 6 and 7 examine TRDM, gender, and age effects for major and minor delinquency. Models 1, 2, and 3 report results without control variables. Here we see that TRDM significantly influences the likelihood of minor delinquency in the full model (Table 7, Model 4), a result that is replicated when equations are modeled separately for males and females ($p<.01$). Moreover, older respondents (Ages 18-19) are significantly less involved with minor delinquency than younger (compared with 12–14-year-olds) but now this category is significant for both males and females in the separate gender-specific equations ($p<.01$). In contrast to Table 7, we can see in Table 6 (models 1, 2, and

[10] Regression analyses were also run with the continuous age variable where an interaction term was created between TRDM and age. These results can be seen in Appendix I (Table 8) and shows that, in both models, the interaction term is not significant. This suggests that age, continuous or categorical, does not moderate the relationship between TRDM and delinquency, as hypothesized.

[11] Considering the concern is the TRDM and Age interaction, the interaction findings are only reported in Table 9. The full model can be seen in Appendix II.

3) that without control variables in the analysis, TRDM is significantly related to major delinquency generally, but this association disappears for males when broken down by gender ($p<.05$). For females, TRDM reduces the likelihood of participating in major crimes ($p<.05$). In these models, age is no longer significant for any of the age categories.

Comparing across the Tables with controls added (Models 4, 5, and 6), TRDM is associated with less involvement in minor delinquency ($p<.01$) (Table 7, Model 4) but not major delinquency (Table 6, Model 4). These slope coefficients are also significantly different from one another (Table 7, Model 7) for minor crime, where TRDM appears to be slightly more impactful for males. The results from on minor delinquency (not major delinquency) support hypothesis 4, where it was predicted that females would be more thoughtfully reflective in the choice to offend than males. It is also important to note that with major delinquency (Table 6), self-control is significantly different between males and females where higher levels of self-control for males lowers the risk of major delinquency (Model 7). Further, peer attachment is also significantly different between males and females for both major and minor crimes (Model 7). Interestingly, the coefficient for females is positive but negative for males. Meaning, peers positively influence delinquency risk for females but restrict males from offending. Moreover, peer attachment matters more for females with minor delinquency (Table 6) but more for males with minor delinquency (Table 7).

[Insert Tables 6 and 7 about here]

In sum, there was only partial support for hypothesis 4. As mentioned, in this sample of respondents, we do not observe a TRDM-major delinquency relationship in the saturated model[12]. Although contrary to expectations, results are consistent with those reported by Timmer et al.'s (2020) who found a larger association between TRDM and more minor crimes. Comparing across the crime types we again see significant differences in some control variables. Results show that self-control significantly reduces the likelihood of participating in major delinquency for males (table 6) and there are significant slope differences between males and females ($p<0.05$). With minor delinquency (table 7), self-control has an inhibitory effect for males and females with no significant differences. Further, while peer attachment is not significant for major or minor crimes, for both crimes, there are significant slope differences between genders and the directions of the signs are noteworthy. Females seem to be positively encouraged to offend by peers, while peers restrain offending for males. Differently, school and parent attachment matter more for females and constrains females from participating in both major and minor crimes. While parent attachment is significant for females in minor and major crimes ($p<0.05$), there are no slope differences. However, for school attachment, there are slope differences for minor crimes but not major crimes. Specifically, school attachment significantly decreases the chance of committing a minor crime ($p<0.01$), meanwhile the slope coefficient for males is positive. These results illustrate that females are heavily influenced by peers, school, and their parents, though

[12] It is worth noting that, with all the models, r-squared does not explain much variance in the dependent variables.

peers can encourage female delinquency. Moreover, self-control is a large influence in male offending, where, if males have self-control, they are less likely to offend.

Lastly, there is an age effect in both minor and major crimes. Being between the ages of 15 – 17 significantly decreases females' participation in major delinquency relative to ages 12-14 ($p<0.05$) (table 6). Meanwhile, although this age group is not significant for minor crimes, there are significant gender differences. Finally, results indicate that, for minor crimes, as males and females become older, they are less likely to offend. In particular, the age group, 18-19, significantly reduces delinquency ($p<0.01$) for both genders. This may be because, as individuals mature, they are more deliberate and careful with their crime decisions.

Robustness Checks

Several robustness checks were conducted to assess whether results are due to how the dependent variable is measured (categorically or as an omnibus variety score) or whether certain dimensions that comprise TRDM are gendered. Results from coding the dependent variable as a variety score and running OLS regressions on general, major, and minor delinquency are reported in Appendix III (Table 10, 11, 12). Results in Table 10, 11, and 12 do not differ considerably from Table 4, 6, and 7, although, there is no longer a gender difference in the minor delinquency coefficients (Table 12, Model 4). Additionally, TRDM is significantly related to general delinquency (Table 10, model 1) but this disappears for males, and stays significant for females, when broken down by gender (model 2 and 3).

In the second test, regressions were run to evaluate the relationship between each TRDM item and gender. Results can be seen in Appendix IIII (Table 13), showing that

the items, “When making decisions, you generally use a systematic method for judging and comparing alternatives” ($p<.05$) and “After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong” ($p<.01$) are negatively and significantly associated with being female. Thus, females are less likely to use a systematic method for judging and comparing alternatives and are less likely to analyze the decision made. Analyses were then done to see if these items independently revealed gender differences when regressed on delinquency. Results reported in Appendix V (Tables 14 and 15; Models 4, 8 and 12) reveal that there are significant gender differences in the measure, “When making decisions, you generally use a systematic method for judging and comparing alternatives” in major crimes, where, if females do this, they are more likely to participate in major delinquency. There are also significant gender differences in the measure, “After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong” in minor crimes, where if females analyze their decision, they are more likely to commit a minor offense. If systematic thought and reflection increase delinquency risk among females but lessen the risk among males, these results suggest that the TRDM measure is not gender-neutral. Male and female agency may differ when it comes to decision-making about delinquency. Future research should drill deeper into the ways in which males and females think about the benefits and costs of delinquency.

Chapter 5: Discussion

The relationship between gender and crime is one of the most robust relationships in criminology. Despite this direct relationship, the reasons for the existence and persistence of the gender gap remains debatable. This thesis focuses on one rational choice mechanism—thoughtfully reflective decision-making (TRDM)—to assess whether it helps to explain the gender gap in crime. TRDM captures different components of decision-making that affect whether an individual chooses to offend, or not, and the process of this decision. Understanding how gender affects decision-making may provide insight into why males offend at higher rates than females.

Using longitudinal data across two waves, I examined the relationship between TRDM and crime, and whether gender and age moderate this relationship. In the following sections, I summarize and interpret the results of the study and then discuss study limitations and directions for future research.

Hypothesis 1: Using a dichotomous general delinquency measure and models with and without control variables, my analyses does not show an association between TRDM and crime. This is inconsistent with past studies (Paternoster and Pogarsky, 2009; Timmer et al., 2020) and hypothesis 1, which states that being a thoughtfully reflective decision-maker decreased participation in crime[13].When crime was broken down into major and minor variety indices, TRDM showed a consistent influence on offending but only in

[13] It is likely that these results differ from Paternoster and Pogarsky's (2009) findings because of their use of an omnibus variety score measure of general delinquency opposed to a dichotomous measure. Illustrated in supplementary analyses (table 9, model 1), the relationship between TRDM and delinquency are significant when using an variety score measure for general delinquency in this study.

models without control variables. When controls were added, TRDM was no longer related to major delinquency while maintaining its negative and significant relationship with minor delinquency. This illustrates that some of the significance of TRDM is captured by control variables and it is likely that the overall significance of TRDM on general delinquency is driven by minor delinquency. This suggests that TRDM is a predictor of minor crime, but there is no evidence that it impacts serious crime. This may be because the minor crimes in this study are more instrumental and calculated, meanwhile more serious crimes that are more injurious, are expressive. Thus, TRDM may be utilized in more minor crimes, meanwhile, for serious offenses, individuals are acting on emotion rather than weighing costs and benefits. Regardless, results offer modest support for hypothesis 1.

Hypothesis 2: Drawing from the gender and crime literature, I expected that TRDM would have more of an influence on delinquency for females than for males. Results are more nuanced than this. Models without control variables reveal that TRDM is negatively related to delinquency for both males and females, but once controls are added, the effect of TRDM generally is statistically significant in the models for females but less commonly so for males. This indicates that, *ceteris paribus*, females appear to utilize TRDM more often than do males in deciding whether to participate in criminal behavior. Thus, there is some support for hypothesis two. Yet, slope comparisons for TRDM across the models, broken down by gender, reveal that the effects of TRDM on delinquency are not significantly different from one another in most equations. Though there are significant gender differences in minor offending, the variable has a stronger

effect for *males than for females*. I discuss this finding in greater depth below when hypothesis 4 is considered.

Because results indicate that there is no evidence of gender differences in TRDM on general and major delinquency, it is important to understand why these differences do not emerge. One important control variable that is strongly and consistently related to male delinquency is low self-control; males who have higher levels of self-control exhibit a significantly lower risk of delinquency participation. Importantly, there are significant gender differences regarding the impact of self-control on delinquency (inhibitory effects are stronger for males than females). Thus, results suggest that females are more strategic and deliberate in their decision to offend, while males may be more impulsive.

Hypothesis 3: Paternoster and Pogarsky (2009) state that TRDM varies within individuals over time because it can be taught and acquired over the years. Thus, we would expect to see individuals become more thoughtfully reflective as they get older. However, due to the maturation rate and cognitive processes of females compared to males, females should be more likely to utilize TRDM at an earlier age (Moffitt, 1993; Bennett et al., 2005). Additionally, supportive evidence that age moderates the effect of TRDM on delinquency would support Paternoster and Pogarsky's (2009) argument that TRDM is distinct from self-control which, once set, is consistent over the life span.

To assess whether the relationship between TRDM and delinquency is moderated by age, an interaction variable was introduced between each age category and crime (ages 12 – 14, 15 – 17, and 18 – 19). None of the TRDM-age interactions were significant in any of the models, illustrating that TRDM levels are not different between these groups.

Although, this may be because these age groups are relatively around the same developmental age. These results do not support hypothesis 3 and appear to challenge Paternoster and Pogarsky's argument that TRDM and self-control are separate concepts. Rather, similar to self-control, TRDM remains constant with age—a finding that contributes to the TRDM literature.

Hypothesis 4: As mentioned earlier, TRDM is negatively related to minor delinquency but there is no evidence in this analysis that it influences major delinquency. These findings are consistent with the hot/cool perspective explained previously (Timmer et al., 2020). For more serious crimes, this reflects a hot process, that even if an individual has an ability to reflect, they are more likely to act on emotion. Meanwhile, considering that TRDM is a thoughtful and rational process, these results may suggest that TRDM matters more for cold processing, rather than hot processing (Mamayek et al., 2015). Minor crimes are dominated by shoplifting and theft which may be more instrumental—although given that the sample is comprised of adolescents, this may be overstating the case. However, in this general population sample, robbery and burglary may be more expressive rather than calculative.

Despite these findings, results are inconsistent with hypothesis 4. I expected TRDM to matter more for females than males, across the board. Results show a relationship between TRDM and minor delinquency for males and females, but no evidence of a relationship with major crimes for either sex. Further, analyses did not find gender differences in the utilization of TRDM for major crimes. However, there are significant gender differences with minor crimes but the coefficient for males is larger

than it is for females. This may be because males, who are more criminally experienced than females, are possibly thoughtfully reflective, but not in a pro-social way. Meaning that males could be collecting criminal capital by learning skills to commit crimes and avoid detection. Thus, we are seeing this thoughtful behavior, but it is brought to bear on the criminal decision. Additionally, as more experienced offenders, males have a more realistic understanding than females of the likelihood of getting caught. This will likely figure into their cost analyses. Not to mention, females may not even consider offending as an option. Previous research has shown that females are less apt to consider offending because it is morally objectionable to them. Evidence suggests that cost-benefit analyses do not influence decisions that are out of an individual's scope of morality (Paternoster and Simpson, 1996). Meaning a "persons' moral sentiments expressly set some behaviors off limits", thus when there are no external costs or sanctions, morality inhibits criminal behavior (Paternoster and Sampson, 1996) Therefore, it is females moral compass that does not consider offending an option. Based on these findings, there are reasons to believe that there are gender differences in cost analyses.

Lastly, this paper contributes to TRDM literature in that TRDM may not be an extension of the rational choice perspective *per se* but tied more closely to control theories instead. In each analysis, some self- and social control variables are statistically significant. In particular, self-control is statistically different for males than females, where having self-control decreases general, major, and minor crime offending. As mentioned, it is possible that TRDM components are, in fact, capturing different aspects of self-control. Moreover, in most of the analyses, school and parent's attachment heavily influence female's participation in crime. This indicates that the opportunity structure for

females differs from males – meaning that the bonds females have with parents and teachers/school inhibits their offending, while males are more influenced by impulsivity. TRDM may manifest in females via their relationships with others, i.e., they do not want to disappoint their parents and teachers to whom they look for guidance and support. Thus, the information gathering and reflection done by females is heavily influenced by these individuals. Overall, it is likely that the individual components of TRDM are not entirely a product of human agency, but heavily influenced by self- and social control variables. This infers that TRDM processes may be trumped by social bonds. Moreover, there are components of TRDM that are gendered themselves. It is likely that these individual mechanisms are driving the gender differences in the utilization of TRDM with delinquency.

Limitations and Directions for Future Research

This study provides a more nuanced insight into concept of TRDM and how it operates similarly and differently for males and females. There are, however, study limitations which have implications for future research. First and foremost, the measure of TRDM is perhaps not the best measure of "good" decision-making. Paternoster and Pogarsky (2009) note that this measure encompasses four individual components that are likely to work separately and hold different weights towards positive life outcomes. AddHealth provides only these four measures for decision-making, thus, other datasets may provide better measures exploring individuals thought processes. Future research should explore different proxies for thoughtful decision-making.

Next, the social bonds variables available in AddHealth are limited; they exclusively measure attachment to school, parents, and peers but neglect commitment, involvement or belief, which are essential in Hirschi's (1969) theory. Attention to these additional measures is important to include in future studies.

Another weakness relates to AddHealth data's sample selection strategy of oversampling African Americans with at least one parent with a college education. This sampling strategy is likely to skew delinquency results, especially among the African American population. While the public-use dataset does not include sample weights, the restricted data has these weights available. Other researchers who utilize this particular dataset should incorporate these sample weights to deal with this particular sampling method. Additionally, considering AddHealth data has individuals clustered by schools and regression analysis assumes random sampling, it would be beneficial to account for this clustering to mitigate biased results. Unfortunately, the public sample does not have a strata variable available to account for clustering and oversampling. This is likely to affect results, and future research should utilize the restricted data which has a strata variable.

Lastly, research on TRDM should also look to see if TRDM varies by frequency of offending. Through investigating a more delinquent sample, research can provide insight into whether there are different results among those dabbling in delinquency versus chronic offenders. Recent work suggests there are important differences in thought processes between proactive and reactive criminal thinkers—the latter is a style of criminal thinking that advances a criminal lifestyle (impulsive, irresponsible, hyper-emotional), while the former emphasizes deliberate, planned, calculated, and neutralizing

aspects of criminal thought process (Walters, 2016). Thus, future research could decompose TRDM measures into these two types of thinking to assess whether the TRDM concept is unidimensional. Moreover, as previously mentioned, the AddHealth sample is a low-crime risk sample which allows more variation in population characteristics, but very little in terms of my dependent variable (delinquency). Additionally, considering this is a low-risk sample, measures for extremely violent crimes are missing. Future research should also explore more serious types of offending (i.e., murder). Because males overwhelmingly commit more violent crimes than females, including these types of crimes will show the stark gender differences in offending that were not found in this study. By incorporating a wider array of illegal behavior, different patterns in thought processes may be revealed.

Learning more about gender differences in decision-making can inform existing policies aimed at deterrence. Specifically, revealing these differences adds to the idea of creating nudges to discourage delinquency (Thaler and Sunstein, 2009). Thaler et al. (2008) describe a choice architecture for criminal decisions. They explain that decision-making is affected by one's environment and these influences make up the choice architecture. There are specific nudges that encourage and reinforce non-criminal behavior taking into consideration one's choice architecture (Pogarsky and Herman, 2019). Nudging is defined as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (Thaler and Sunstein, 2009; p. 6). These nudges include information, social/peer groups, emotions, morality, simplification, and pre-commitment (Pogarsky and Herman, 2019).

This is relevant to TRDM because specific nudges can change a person's choice architecture, and, therefore, alter individuals thought processes in making a decision. In particular, the specific nudge can affect (1) the facts about the problem, (2) different approaches to the problem, (3) an individual's judgment in comparing the alternatives to the problem, and (4) understanding what went wrong and right in the decision made. Meaning that the nudge utilized can affect all components that make up a thoughtfully reflective decision-maker. If, consistent with results in this study, future research also reveals gender differences in decision-making, then separate types of nudges for males and females may be used to nudge those individuals in the right direction or behavior that is preferred.

Specifically, the idea of using information as a deterrence tactic is not foreign to criminal justice policy. This is where policy makers will increase the perception of risk, through information, to deter crime. This type of nudge "can both inject new information into the decision environment and affect the salience of specific items" (Pogarsky and Herman, 2019; p. 825). Results indicate that being a thoughtfully reflective decision-maker decreases some crime types, and there are significant gender differences where it matters more for males. Thus, information nudges may be exclusively effective for minor delinquency and males. This knowledge can guide those in leadership in elevating perceptions of risk for this demographic and type of crime.

Further, as mentioned, social and self-control variables likely influence the measures that make up TRDM. For instance, self-control was consistently significant in the models and matters more for males than females. Thus, policymakers should focus on simplification and pre-commitment nudges. Simplification is the idea that, because

decisions are complex, individuals take shortcuts in their decision-making and are more likely to act without thinking. Creating simple and direct decisions can alter the choice structure for individuals. An example for this is a reentry handbook that is given to prisoners upon release. Rather than having to make difficult decisions on their own, the handbook provides information and instructions to simplify their choices (Pogarksy and Herman, 2019). Further, pre-commitment nudges can be utilized for those that lack self-control. These types of nudges force an individual to pre-commit to future goals, thus limiting impulse decisions (Pogarsky and Herman, 2019).

Separately, this paper shows that peer influence affects females' propensity to offend, where social groups encourage delinquency. Considering that females are more prone to conform to social norms, this can be used in a pro-social way as well. For example, Pogarsky and Herman (2019) describe the use of signs around campus at the University of Albany that read "94% of students choose not to use illegal drugs". If most peers are not participating in criminal activities, it is likely to nudge females to not participate as well. Overall, if gender differences are found in TRDM and its relationship with delinquency, it is not the punishment that changes based on gender, but, instead, the specific nudge utilized. This has implications in how we think about punishment in our criminal justice system and within school institutions. This paper contributes to evidence that decision-making structures can influence policy.

In sum, this thesis provides some support for the relationship between TRDM, gender, and delinquency in a general population sample but no evidence that TRDM increases with age. Further, the effect of TRDM on delinquency is substantially reduced once controls are added, suggesting that there are other factors explaining male and

female delinquency that cancel out the effects of TRDM. This paper shows that TRDM is not an influential mechanism in explaining the gender gap in crime. In fact, this measure does not explain delinquency generally or account for important offending differences between males and females. Rather, it discounts Paternoster and Pogarsky's (2009) assumption that TRDM varies across persons. Overall, this thesis contributes to TRDM literature by revealing that the measure of TRDM may operate through social control measures, indicating different mechanisms of control.

Tables

Table 1. Descriptive Statistics

VARIABLES	(1) N Full Model	(2) Mean Full Model	(3) SD Full Model	(4) Min	(5) Max
General Delinquency	2,932	.94	0.236	0	1
Major Delinquency	2,932	0.0627	0.243	0	1
Minor Delinquency	2,932	0.211	0.408	0	1
Female	2,932	0.519	0.500	0	1
TRDM	2,932	15.17	2.484	4	20
Age (12-14)	2,932	0.284	0.451	0	1
Age (15-17)	2,932	0.609	0.488	0	1
Age (18-19)	2,932	0.106	0.308	0	1
White/Hispanic	2,932	0.046	0.21	0	1
White/Non-Hispanic	2,932	0.665	0.472	0	1
Black/Hispanic	2,932	0.00136	0.0369	0	1
Black/Non-Hispanic	2,932	0.150	0.357	0	1
Other/Hispanic	2,932	0.0563	0.230	0	1
Other/Non-Hispanic	2,932	0.0812	0.273	0	1
Self-Control	2,932	3.040	1.123	1	5
School Attachment	2,932	3.945	0.960	1	5
Parent Attachment	2,932	4.830	0.512	1	5
Peer Attachment	2,932	4.295	0.750	1	5
Mothers Education	2,932	0.333	0.471	0	1
Fathers Education	2,932	0.358	0.480	0	1

* *Notes:* Those that were outside the ages of 12 - 19 were excluded. These respondents were not age normative for grades 7 - 12 (see Paternoster & Pogarsky, 2009).
Additionally, if individuals did not respond to the survey questions that are being investigated were also excluded.

Table 2. Descriptive Statistics by Gender

VARIABLES	(1) N Female	(2) Mean Female	(3) SD Female	(4) N Male	(5) Mean Male	(6) SD Male	(7) Min	(8) Max
General Delinquency	1,523	0.961	0.195	1,409	0.919	0.273	0	1
Major Delinquency	1,523	0.043	0.202	1,409	0.085	0.278	0	1
Minor Delinquency	1,523	0.186	0.389	1,409	0.239	0.427	0	1
Female	1,523			1,409			0	1
TRDM	1,523	15.098	2.458	1,409	15.25	2.509	4	20
Age (12-14)	1,523	0.309	0.462	1,409	0.258	0.438	0	1
Age (15-17)	1,523	0.598	0.292	1,409	0.622	0.485	0	1
Age (18-19)	1,523	0.094	0.473	1,409	0.12	0.325	0	1
White/Hispanic	1,523	0.044	0.205	1,409	0.0483	0.214	0	1
White/Non-Hispanic	1,523	0.661	0.473	1,409	0.67	0.47	0	1
Black/Hispanic	1,523	0.002	0.0444	1,409	0.001	0.027	0	1
Black/Non-Hispanic	1,523	0.154	0.361	1,409	0.145	0.352	0	1
Other/Hispanic	1,523	0.059	0.236	1,409	0.053	0.225	0	1
Other/Non-Hispanic	1,523	0.794	0.271	1,409	0.083	0.276	0	1
Self-Control	1,523	3.15	1.106	1,409	2.92	1.129	1	5
School Attachment	1,523	3.955	0.961	1,409	3.933	0.958	1	5
Parent Attachment	1,523	4.83	0.505	1,409	4.83	0.52	1	5
Peer Attachment	1,523	4.43	0.693	1,409	4.145	0.781	1	5
Mothers Education	1,523	0.328	0.47	1,409	0.339	0.473	0	1
Fathers Education	1,523	0.361	0.48	1,409	0.356	0.479	0	1

* *Notes:* Those that were outside the ages of 12 - 19 were excluded. These respondents were not age normative for grades 7 - 12 (see Paternoster & Pogarsky, 2009).
Additionally, if individuals did not respond to the survey questions that are being investigated were also excluded.

Table 3. Bivariate Correlation Matrix

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Delinquency	1.00																			
2. Major Delinquency	0.4395	1.00																		
3. Minor Delinquency	0.6316	0.3344	1.00																	
4. TRDM	-0.084	-0.0422	-0.0987	1.00																
5. Female	-0.1363	-0.0861	-0.0653	-0.03	1.00															
6. Age (12-14)	-0.0031	0.0083	0.0401	-0.0487	0.06	1.00														
7. Age (15-17)	0.0415	0.0026	0.016	0.0286	-0.0248	-0.79	1.00													
8. Age (18-19)	-0.0614	-0.0163	-0.0839	0.026	-0.0422	-0.2176	-0.4308	1.00												
9. White/Hispanic	0.0437	0.0304	0.0138	0.0012	-0.0102	0.0022	-0.0008	-0.0019	1.00											
10. White/Non-Hispanic	-0.0372	-0.043	-0.0187	-0.0526	-0.0093	0.0305	-0.0303	0.0033	-0.31	1.00										
11. Black/Hispanic	0.0054	-0.0096	0.0035	0.0384	0.0171	0.0177	-0.0083	-0.0128	-0.0081	-0.05	1.00									
12. Black/Non-Hispanic	-0.0166	0.0136	-0.023	0.0634	0.0133	-0.0146	0.0207	-0.0115	-0.0922	-0.5918	-0.02	1.00								
13. Other/Hispanic	0.0268	0.0344	0.0221	0.0231	0.0127	-0.0293	0.0227	0.0069	-0.0536	-0.3444	-0.009	-0.1025	1.00							
14. Other/Non-Hispanic	0.0289	0.0055	0.0326	-0.0175	-0.0066	-0.013	0.0077	0.0068	-0.0653	-0.4192	-0.011	-0.1247	-0.07	1.00						
15. Fathers Education	0.0103	-0.0028	0.0309	-0.0147	0.0058	0.0426	-0.0047	-0.055	-0.0726	0.0417	-0.0084	0.0411	-0.1116	0.0252	1.00					
16. Mothers Education	0.0299	0.0112	0.0153	-0.0033	-0.0116	0.0455	-0.0082	-0.0536	-0.0861	-0.0099	-0.0065	0.1052	-0.1128	0.0418	0.4862	1.00				
17. School Attachment	-0.0974	-0.0496	-0.052	0.1722	0.0115	0.0875	-0.0381	-0.0677	-0.0026	0.0277	0.0214	0.0262	-0.0276	-0.0597	0.0549	0.0362	1.00			
18. Self-control	-0.0888	-0.068	-0.0934	0.1064	0.1026	-0.0061	0.027	-0.0338	-0.0556	0.0289	-0.0013	0.0073	-0.0073	-0.0105	0.127	0.1086	0.0407	1.00		
19. Parent Attachment	-0.0696	-0.0709	-0.0423	0.0639	0.0002	0.0419	-0.0277	-0.0175	-0.0035	0.0448	0.0122	0.0026	-0.0001	-0.0796	0.0363	0.0388	0.1309	0.0728	1.00	
20. Peer Attachment	-0.037	-0.0493	-0.0177	0.0832	0.1926	0.0231	0.0122	-0.0531	-0.03	0.1295	-0.0022	-0.0784	-0.0447	-0.0603	0.1061	0.0686	0.1752	0.0947	0.2687	1.00

Table 4. Robust OLS Models Assessing TRDM on Delinquency

VARIABLES	(1) Full Model	(2) Female	(3) Male	(4) Full Model	(5) Female	(6) Male	(7)
TRDM	0.00134	0.000154	0.00271	0.00207	0.000630	0.00348	-
	(0.00187)	(0.00208)	(0.00313)	(0.00190)	(0.00214)	(0.00322)	-
Female	0.0417***	-	-	0.0442***	-	-	-
	(0.00885)	-	-	(0.00924)	-	-	-
Age (15-17)	0.00652	-0.00674	0.0223	0.00775	-0.00628	0.0237	-
	(0.0100)	(0.0111)	(0.0176)	(0.00991)	(0.0108)	(0.0176)	-
Age (18-19)	-0.00548	0.00814	-0.0140	-0.00387	0.0105	-0.0143	*
	(0.0166)	(0.0162)	(0.0283)	(0.0166)	(0.0169)	(0.0281)	-
White/Non-Hispanic	-	-	-	0.0103	0.0393	-0.0154	-
	-	-	-	(0.0221)	(0.0324)	(0.0297)	-
Black/Hispanic	-	-	-	-0.201	-0.264	0.0361	-
	-	-	-	(0.219)	(0.274)	(0.0314)	-
Black/Non-Hispanic	-	-	-	-0.0284	0.0186	-0.0715*	-
	-	-	-	(0.0257)	(0.0358)	(0.0375)	-
Other/Hispanic	-	-	-	0.00351	0.00898	0.00500	-
	-	-	-	(0.0285)	(0.0415)	(0.0383)	-
Other/Non-Hispanic	-	-	-	-0.0162	0.0276	-0.0582	-
	-	-	-	(0.0276)	(0.0377)	(0.0399)	-
Fathers Education	-	-	-	0.0226**	0.0199*	0.0243	-
	-	-	-	(0.00950)	(0.0117)	(0.0153)	-
Mothers Education	-	-	-	0.00906	-0.000734	0.0201	-
	-	-	-	(0.00966)	(0.0119)	(0.0153)	-
School Attachment	-	-	-	-0.00414	-0.000461	-0.00725	*
	-	-	-	(0.00459)	(0.00506)	(0.00793)	-
Self-control	-	-	-	0.00207	-0.000721	0.00545	-
	-	-	-	(0.00413)	(0.00492)	(0.00687)	-
Parent Attachment	-	-	-	0.0109	-0.00229	0.0225	-
	-	-	-	(0.00989)	(0.00886)	(0.0173)	-
Peer Attachment	-	-	-	-0.00746	0.00241	-0.0148	*
	-	-	-	(0.00692)	(0.00846)	(0.0103)	-
Constant	0.895***	0.962***	0.866***	0.859***	0.920***	0.828***	-
	(0.0299)	(0.0315)	(0.0496)	(0.0587)	(0.0653)	(0.0972)	-
							-
Observations	2,932	1,523	1,409	2,932	1,523	1,409	-
R-squared	0.008	0.001	0.003	0.017	0.012	0.017	-

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Notes. This model is illustrating the relationship between TRDM and Delinquency (dichotomous variable), looking at full models and then broken down by gender. Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.
Model 4 is testing for the equality of regression coefficients between males and females

Table 5. Robust OLS Models Assessing TRDM on Delinquency Between Age

VARIABLES	(1) Full Model Age 12-14	(2) Female 12-14	(3) Male 12-14	(4) Full Model Age 15-17	(5) Female Age 15-17	(6) Male Age 15-17	(7) Full Model Age 18-19	(8) Female Age 18-19	(9) Male Age 18-19
TRDM	-0.0161*	-0.0145	-0.0180	-0.0323***	-0.0451***	-0.0134	-0.0232***	-0.0276***	-0.0183
	(0.00851)	(0.00992)	(0.0138)	(0.0124)	(0.0158)	(0.0194)	(0.00811)	(0.0102)	(0.0128)
Female	-0.214***	-	-	-0.210***	-	-	-0.215***	-	-
	(0.0376)	-	-	(0.0376)	-	-	(0.0376)	-	-
Age (12-14)	0.362	0.654*	-0.0654				-	-	-
	(0.275)	(0.347)	(0.425)				-	-	-
Age (12-14) *TRDM	-0.0209	-0.0354	0.00189				-	-	-
	(0.0177)	(0.0220)	(0.0275)				-	-	-
Age (15-17)	-	-	-	-0.184	-0.482	0.216	-	-	-
	-	-	-	(0.247)	(0.309)	(0.387)	-	-	-
Age (15-17) *TRDM	-	-	-	0.0153	0.0305	-0.00647	-	-	-
	-	-	-	(0.0157)	(0.0196)	(0.0247)	-	-	-
Age (18-19)	-	-	-	-	-	-	-0.475	-0.443*	-0.488
	-	-	-	-	-	-	(0.290)	(0.262)	(0.534)
Age (18-19) *TRDM	-	-	-	-	-	-	0.0164	0.0130	0.0189
	-	-	-	-	-	-	(0.0185)	(0.0166)	(0.0337)

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Notes. This model is assessing TRDM on Delinquency broken down by age categories and gender (including the age category and TRDM interaction variable). Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category. Model 4, 8, and 12 are testing for the equality of regression coefficients between males and females

Table 6. Robust OLS Models Assessing TRDM on Major Delinquency

VARIABLES	(1) Full Model	(2) Female	(3) Male	(4) Full Model	(5) Female	(6) Male	(7)
TRDM	-0.00431**	-0.00534**	-0.00309	-0.00294	-0.00399*	-0.00160	-
	(0.00184)	(0.00232)	(0.00285)	(0.00181)	(0.00222)	(0.00285)	-
Female	-0.0430***	-	-	-0.0402***	-	-	-
	(0.00901)	-	-	(0.00902)	-	-	-
Age (15-17)	-0.00393	-0.0193	0.0147	-0.00699	-0.0245**	0.0131	-
	(0.0103)	(0.0121)	(0.0171)	(0.0103)	(0.0121)	(0.0170)	-
Age (18-19)	-0.0176	-0.0205	-0.0108	-0.0229	-0.0337*	-0.00980	-
	(0.0151)	(0.0186)	(0.0236)	(0.0152)	(0.0198)	(0.0236)	-
White/Non-Hispanic	-	-	-	-0.0382	-0.0837**	0.00474	-
	-	-	-	(0.0261)	(0.0387)	(0.0331)	-
Black/Hispanic	-	-	-	-0.0699***	-0.102***	-0.0490	-
	-	-	-	(0.0268)	(0.0388)	(0.0350)	-
Black/Non-Hispanic	-	-	-	-0.0223	-0.0731*	0.0277	-
	-	-	-	(0.0283)	(0.0400)	(0.0390)	-
Other/Hispanic	-	-	-	0.00645	-0.0359	0.0469	-
	-	-	-	(0.0342)	(0.0473)	(0.0492)	-
Other/Non-Hispanic	-	-	-	-0.0344	-0.0799*	0.0137	-
	-	-	-	(0.0304)	(0.0425)	(0.0421)	-
Fathers Education	-	-	-	0.000907	0.000854	0.00266	-
	-	-	-	(0.0107)	(0.0121)	(0.0179)	-
Mothers Education	-	-	-	0.0113	0.00769	0.0148	-
	-	-	-	(0.0111)	(0.0125)	(0.0184)	-
School Attachment	-	-	-	-0.00897*	-0.0164**	-0.00241	-
	-	-	-	(0.00529)	(0.00728)	(0.00764)	-
Self-control	-	-	-	-0.0111***	-0.00670	-0.0160**	*
	-	-	-	(0.00410)	(0.00476)	(0.00665)	-
Parent Attachment	-	-	-	-0.0292**	-0.0399**	-0.0166	-
	-	-	-	(0.0121)	(0.0167)	(0.0168)	-
Peer Attachment	-	-	-	-0.000419	0.0114	-0.00950	*
	-	-	-	(0.00662)	(0.00856)	(0.00976)	-
Constant	0.155***	0.137***	0.124***	0.374***	0.421***	0.261***	-
	(0.0305)	(0.0395)	(0.0447)	(0.0737)	(0.104)	(0.0986)	-
							-
Observations	2,932	1,523	1,409	2,932	1,523	1,409	-
R-squared	0.010	0.007	0.002	0.022	0.034	0.011	-

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between TRDM and Major Delinquency (dichotomous variable), looking at full models and then broken down by gender. Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.
Model 4 is testing for the equality of regression coefficients between males and females

Table 7. Robust OLS Models Assessing TRDM on Minor Delinquency

VARIABLES	(1) Full Model	(2) Female	(3) Male	(4) Full Model	(5) Female	(6) Male	(7)
TRDM	-0.0161***	-0.0144***	-0.0180***	-0.0133***	-0.0112***	-0.0153***	*
	(0.00309)	(0.00422)	(0.00451)	(0.00312)	(0.00426)	(0.00458)	-
Female	-0.0596***	-	-	-0.0553***	-	-	-
	(0.0150)	-	-	(0.0152)	-	-	-
Age (15-17)	-0.0199	-0.00469	-0.0385	-0.0228	-0.0129	-0.0389	*
	(0.0176)	(0.0226)	(0.0275)	(0.0176)	(0.0226)	(0.0276)	-
Age (18-19)	-0.125***	-0.129***	-0.126***	-0.132***	-0.155***	-0.119***	-
	(0.0229)	(0.0281)	(0.0359)	(0.0233)	(0.0294)	(0.0365)	-
White/Non-Hispanic	-	-	-	-0.0289	-0.00687	-0.0526	-
	-	-	-	(0.0375)	(0.0481)	(0.0570)	-
Black/Hispanic	-	-	-	0.0640	0.183	-0.175***	-
	-	-	-	(0.233)	(0.299)	(0.0596)	-
Black/Non-Hispanic	-	-	-	-0.0382	0.00956	-0.0952	-
	-	-	-	(0.0409)	(0.0527)	(0.0621)	-
Other/Hispanic	-	-	-	0.0282	0.0587	-0.00543	-
	-	-	-	(0.0492)	(0.0639)	(0.0750)	-
Other/Non-Hispanic	-	-	-	0.0132	0.0545	-0.0181	-
	-	-	-	(0.0456)	(0.0599)	(0.0689)	-
Fathers Education	-	-	-	0.0326*	0.0304	0.0327	-
	-	-	-	(0.0185)	(0.0251)	(0.0274)	-
Mothers Education	-	-	-	0.00437	-0.0171	0.0270	-
	-	-	-	(0.0189)	(0.0253)	(0.0280)	-
School Attachment	-	-	-	-0.0172**	-0.0333***	0.000941	*
	-	-	-	(0.00825)	(0.0114)	(0.0118)	-
Self-control	-	-	-	-0.0299***	-0.0266***	-0.0341***	-
	-	-	-	(0.00682)	(0.00934)	(0.00992)	-
Parent Attachment	-	-	-	-0.0262	-0.0487**	-0.00519	-
	-	-	-	(0.0164)	(0.0225)	(0.0238)	-
Peer Attachment	-	-	-	0.0105	0.0281*	-0.00497	*
	-	-	-	(0.0103)	(0.0151)	(0.0142)	-
Constant	0.512***	0.418***	0.553***	0.719***	0.693***	0.682***	-
	(0.0507)	(0.0671)	(0.0735)	(0.0986)	(0.134)	(0.144)	-
							-
Observations	2,932	1,523	1,409	2,932	1,523	1,409	-
R-squared	0.022	0.018	0.019	0.034	0.038	0.032	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between TRDM and Minor Delinquency (dichotomous variable), looking at full models and then broken down by gender. Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.

Model 4 is testing for the equality of regression coefficients between males and females

Appendices

Appendix I

Table 8. Robust OLS Models Assessing TRDM Impact on Delinquency Between Age

VARIABLES	(1) Full Model	(2) Female	(3) Male
TRDM	-0.00307	3.34e-05	-0.00323
	(0.0183)	(0.0187)	(0.0333)
Female	0.0445***	-	-
	(0.00921)	-	-
Age (Continuous)	-0.00251	0.00284	-0.00483
	(0.0177)	(0.0177)	(0.0325)
TRDM*Age	0.000326	2.46e-05	0.000428
	(0.00116)	(0.00118)	(0.00208)
White/Non-Hispanic	0.0100	0.0389	-0.0177
	(0.0221)	(0.0324)	(0.0296)
Black/Hispanic	-0.199	-0.260	0.0448
	(0.219)	(0.271)	(0.0312)
Black/Non-Hispanic	-0.0283	0.0176	-0.0734*
	(0.0257)	(0.0357)	(0.0377)
Other/Hispanic	0.00333	0.00741	0.00358
	(0.0284)	(0.0415)	(0.0382)
Other/Non-Hispanic	-0.0166	0.0266	-0.0578
	(0.0276)	(0.0376)	(0.0401)
Fathers Education	0.0229**	0.0200*	0.0250
	(0.00949)	(0.0116)	(0.0153)
Mothers Education	0.00947	-0.000256	0.0202
	(0.00966)	(0.0119)	(0.0153)
School Attachment	-0.00378	0.000233	-0.00694
	(0.00461)	(0.00513)	(0.00801)
Self-control	0.00209	-0.00111	0.00510
	(0.00411)	(0.00478)	(0.00682)
Parent Attachment	0.0108	-0.00205	0.0210
	(0.00990)	(0.00890)	(0.0173)
Peer Attachment	-0.00717	0.00206	-0.0147
	(0.00692)	(0.00851)	(0.0103)
Constant	0.901***	0.876***	0.925*
	(0.287)	(0.284)	(0.530)
Observations	2,932	1,523	1,409
R-squared	0.017	0.012	0.015

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Notes. This model is assessing TRDM on Delinquency, and whether age (continuous) moderates this relationship. It is also broken down by gender. White/Hispanic is the reference group for the race category.

Appendix II

Table 9. Robust OLS Models Assessing TRDM on Delinquency Between Age

VARIABLES	(1) Full Model Age 12-14	(2) Female 12-14	(3) Male 12-14	(4) Full Model Age 15-17	(5) Female Age 15-17	(6) Male Age 15-17	(7) Full Model Age 18-19	(8) Female Age 18-19	(9) Male Age 18-19
TRDM	-0.0161*	-0.0145	-0.0180	-0.0323***	-0.0451***	-0.0134	-0.0232***	-0.0276***	-0.0183
	(0.00851)	(0.00992)	(0.0138)	(0.0124)	(0.0158)	(0.0194)	(0.00811)	(0.0102)	(0.0128)
Female	-0.214***	-	-	-0.210***	-	-	-0.215***	-	-
	(0.0376)	-	-	(0.0376)	-	-	(0.0376)	-	-
Age (12-14)	0.362	0.654*	-0.0654	-	-	-	-	-	-
	(0.275)	(0.347)	(0.425)	-	-	-	-	-	-
Age (12-14)*TRDM	-0.0209	-0.0354	0.00189	-	-	-	-	-	-
	(0.0177)	(0.0220)	(0.0275)	-	-	-	-	-	-
Age (15-17)	-	-	-	-0.184	-0.482	0.216	-	-	-
	-	-	-	(0.247)	(0.309)	(0.387)	-	-	-
Age (15-17)*TRDM	-	-	-	0.0153	0.0305	-0.00647	-	-	-
	-	-	-	(0.0157)	(0.0196)	(0.0247)	-	-	-
Age (18-19)	-	-	-	-	-	-	-0.475	-0.443*	-0.488
	-	-	-	-	-	-	(0.290)	(0.262)	(0.534)
Age (18-19)*TRDM	-	-	-	-	-	-	0.0164	0.0130	0.0189
	-	-	-	-	-	-	(0.0185)	(0.0166)	(0.0337)
White/Non-Hispanic	-0.145	-0.170	-0.108	-0.146	-0.178	-0.101	-0.139	-0.175	-0.0997
	(0.0942)	(0.128)	(0.136)	(0.0946)	(0.129)	(0.135)	(0.0945)	(0.130)	(0.136)
Black/Hispanic	-0.336	-0.657**	0.658***	-0.328	-0.638**	0.634***	-0.342	-0.654**	0.648***
	(0.328)	(0.259)	(0.149)	(0.317)	(0.250)	(0.151)	(0.330)	(0.260)	(0.146)
Black/Non-Hispanic	-0.193*	-0.151	-0.230	-0.198*	-0.162	-0.224	-0.192*	-0.168	-0.218
	(0.102)	(0.134)	(0.154)	(0.103)	(0.135)	(0.153)	(0.103)	(0.136)	(0.154)
Other/Hispanic	0.0316	-0.00601	0.0808	0.0274	-0.0136	0.0854	0.0344	-0.0198	0.0907
	(0.130)	(0.160)	(0.210)	(0.130)	(0.161)	(0.210)	(0.130)	(0.161)	(0.210)
Other/Non-Hispanic	-0.0981	-0.186	0.0193	-0.102	-0.200	0.0190	-0.0945	-0.181	0.0157
	(0.115)	(0.142)	(0.181)	(0.115)	(0.143)	(0.180)	(0.115)	(0.143)	(0.181)
Fathers Education	0.110**	0.0727	0.148*	0.111**	0.0773	0.147*	0.107**	0.0746	0.145*
	(0.0462)	(0.0491)	(0.0791)	(0.0463)	(0.0495)	(0.0790)	(0.0459)	(0.0494)	(0.0788)
Mothers Education	0.0473	-0.00584	0.110	0.0502	-0.000293	0.110	0.0430	-0.0120	0.105
	(0.0457)	(0.0483)	(0.0775)	(0.0457)	(0.0484)	(0.0774)	(0.0455)	(0.0483)	(0.0773)
School Attachment	-0.0759***	-0.0857***	-0.0646*	-0.0730***	-0.0800***	-0.0647*	-0.0785***	-0.0840***	-0.0693**
	(0.0213)	(0.0269)	(0.0335)	(0.0212)	(0.0267)	(0.0335)	(0.0212)	(0.0266)	(0.0336)
Self-control	-0.0546***	-0.0343*	-0.0770***	-0.0556***	-0.0356*	-0.0762***	-0.0559***	-0.0393**	-0.0757***
	(0.0164)	(0.0183)	(0.0276)	(0.0165)	(0.0185)	(0.0276)	(0.0165)	(0.0184)	(0.0276)
Parent Attachment	-0.0822*	-0.109**	-0.0471	-0.0790*	-0.106*	-0.0422	-0.0797*	-0.110**	-0.0448
	(0.0449)	(0.0541)	(0.0699)	(0.0448)	(0.0548)	(0.0692)	(0.0447)	(0.0549)	(0.0701)
Peer Attachment	0.0112	0.0385	-0.0148	0.00964	0.0377	-0.0154	0.00723	0.0297	-0.0144
	(0.0268)	(0.0329)	(0.0407)	(0.0268)	(0.0332)	(0.0407)	(0.0267)	(0.0330)	(0.0408)
Constant	2.603***	2.374***	2.545***	2.814***	2.865***	2.364***	2.766***	2.698***	2.561***
	(0.275)	(0.334)	(0.424)	(0.322)	(0.431)	(0.469)	(0.278)	(0.363)	(0.422)
Observations	2,932	1,523	1,409	2,932	1,523	1,409	2,932	1,523	1,409
R-squared	0.035	0.043	0.023	0.035	0.037	0.025	0.039	0.043	0.025

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is assessing TRDM on Delinquency broken down by age categories and gender (including the age category and TRDM interaction variable). Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.

Model 4, 8, and 12 are testing for the equality of regression coefficients between males and females

Appendix III

Table 10. Robust OLS Models Assessing TRDM on Delinquency

VARIABLES	(1) Full Model	(2) Female	(3) Male	(4)
TRDM	-0.0214***	-0.0249***	-0.0168	-
	(0.00747)	(0.00918)	(0.0120)	-
Female	-0.216***	-	-	-
	(0.0376)	-	-	-
Age (15-17)	-0.0167	-0.0965**	0.0713	-
	(0.0428)	(0.0480)	(0.0739)	-
Age (18-19)	-0.235***	-0.311***	-0.145	-
	(0.0595)	(0.0581)	(0.104)	-
White/Non-Hispanic	-0.140	-0.175	-0.0984	-
	(0.0944)	(0.128)	(0.136)	-
Black/Hispanic	-0.350	-0.685**	0.622***	-
	(0.332)	(0.273)	(0.146)	-
Black/Non-Hispanic	-0.194*	-0.164	-0.219	-
	(0.103)	(0.134)	(0.154)	-
Other/Hispanic	0.0346	-0.0121	0.0879	-
	(0.129)	(0.159)	(0.210)	-
Other/Non-Hispanic	-0.0963	-0.178	0.0151	-
	(0.115)	(0.141)	(0.181)	-
Fathers Education	0.107**	0.0731	0.144*	-
	(0.0459)	(0.0492)	(0.0787)	-
Mothers Education	0.0435	-0.0150	0.108	-
	(0.0455)	(0.0482)	(0.0772)	-
School Attachment	-0.0792***	-0.0893***	-0.0676**	-
	(0.0212)	(0.0269)	(0.0334)	-
Self-control	-0.0559***	-0.0376**	-0.0757***	*
	(0.0165)	(0.0183)	(0.0276)	-
Parent Attachment	-0.0803*	-0.114**	-0.0421	-
	(0.0449)	(0.0548)	(0.0695)	-
Peer Attachment	0.00758	0.0315	-0.0147	*
	(0.0268)	(0.0332)	(0.0407)	-
Constant	2.756***	2.744***	2.468***	-
	(0.277)	(0.364)	(0.408)	-
				-
Observations	2,932	1,523	1,409	-
R-squared	0.039	0.046	0.026	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between TRDM and Delinquency, looking at full models and then broken down by gender. Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.

Model 7 is testing for the equality of regression coefficients between males and females. * indicates significance.

Table 11. Robust OLS Models Assessing TRDM on Major Delinquency				
VARIABLES	(1) Full Model	(2) Female	(3) Male	(4)
TRDM	-0.00299	-0.00463*	-0.000887	-
	(0.00225)	(0.00265)	(0.00366)	-
Female	-0.0565***	-	-	-
	(0.0115)	-	-	-
Age (15-17)	-0.0102	-0.0275*	0.00933	-
	(0.0133)	(0.0142)	(0.0233)	-
Age (18-19)	-0.0313	-0.0428**	-0.0170	-
	(0.0192)	(0.0214)	(0.0323)	-
White/Non-Hispanic	-0.0396	-0.0950**	0.0116	-
	(0.0319)	(0.0458)	(0.0421)	-
Black/Hispanic	-0.0780**	-0.113**	-0.0581	-
	(0.0328)	(0.0446)	(0.0448)	-
Black/Non-Hispanic	-0.0194	-0.0792*	0.0379	-
	(0.0347)	(0.0471)	(0.0494)	-
Other/Hispanic	0.0176	-0.0392	0.0714	-
	(0.0434)	(0.0560)	(0.0674)	-
Other/Non-Hispanic	-0.0414	-0.0949*	0.0137	-
	(0.0364)	(0.0486)	(0.0523)	-
Fathers Education	0.00725	0.000573	0.0158	-
	(0.0140)	(0.0127)	(0.0253)	-
Mothers Education	0.00711	0.00821	0.00590	-
	(0.0141)	(0.0132)	(0.0250)	-
School Attachment	-0.0120*	-0.0215**	-0.00342	-
	(0.00684)	(0.00908)	(0.0102)	-
Self-control	-0.0140***	-0.00784	-0.0209**	*
	(0.00534)	(0.00565)	(0.00904)	-
Parent Attachment	-0.0345**	-0.0432**	-0.0243	-
	(0.0150)	(0.0193)	(0.0224)	-
Peer Attachment	-0.00321	0.0112	-0.0145	*
	(0.00864)	(0.0106)	(0.0132)	-
Constant	0.457***	0.489***	0.342***	-
	(0.0928)	(0.124)	(0.131)	-
				-
Observations	2,932	1,523	1,409	-
R-squared	0.022	0.035	0.010	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between TRDM and Major Delinquency, looking at full models and then broken down by gender. Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.

Model 7 is testing for the equality of regression coefficients between males and females. * indicates significance

Table 12. Robust OLS Models Assessing TRDM on Minor Delinquency				
VARIABLES	(4) Full Model	(5) Female	(6) Male	(7)
TRDM	-0.0229***	-0.0198***	-0.0258***	-
	(0.00526)	(0.00725)	(0.00767)	-
Female	-0.0848***	-	-	-
	(0.0258)	-	-	-
Age (15-17)	-0.0401	-0.0313	-0.0576	-
	(0.0301)	(0.0392)	(0.0468)	-
Age (18-19)	-0.234***	-0.272***	-0.210***	-
	(0.0379)	(0.0477)	(0.0594)	-
White/Non-Hispanic	-0.0557	-0.0210	-0.0953	-
	(0.0656)	(0.0840)	(0.100)	-
Black/Hispanic	-0.0596	0.0769	-0.301***	-
	(0.243)	(0.315)	(0.106)	-
Black/Non-Hispanic	-0.0866	-0.00513	-0.186*	-
	(0.0708)	(0.0910)	(0.108)	-
Other/Hispanic	0.0515	0.108	-0.0128	-
	(0.0865)	(0.113)	(0.132)	-
Other/Non-Hispanic	-0.0156	0.0468	-0.0650	-
	(0.0781)	(0.101)	(0.119)	-
Fathers Education	0.0443	0.0511	0.0334	-
	(0.0319)	(0.0439)	(0.0469)	-
Mothers Education	0.0226	-0.0147	0.0616	-
	(0.0326)	(0.0442)	(0.0481)	-
School Attachment	-0.0336**	-0.0581***	-0.00554	-
	(0.0143)	(0.0199)	(0.0204)	-
Self-control	-0.0444***	-0.0409**	-0.0493***	-
	(0.0116)	(0.0162)	(0.0166)	-
Parent Attachment	-0.0384	-0.0715*	-0.00856	-
	(0.0277)	(0.0383)	(0.0397)	-
Peer Attachment	0.0140	0.0445*	-0.0130	-
	(0.0171)	(0.0249)	(0.0236)	*
Constant	1.200***	1.143***	1.163***	-
	(0.168)	(0.231)	(0.240)	-
				-
Observations	2,932	1,523	1,409	-
R-squared	0.033	0.037	0.031	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between TRDM and Minor Delinquency, looking at full models and then broken down by gender. Ages 12-14 are the reference group for the age category and White/Hispanic is the reference group for the race category.

Model 7 is testing for the equality of regression coefficients between males and females. * indicates significance

Appendix IIII

Table 13. Robust OLS Models Assessing Gender's Impact on TRDM Scale Items	
VARIABLES	
1	-0.00234
	(0.0317)
2	0.00620
	-0.0282
3	-0.0749**
	(0.0321)
4	-0.0811***
	(0.0309)
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1	

1. When you have a problem to solve, one of the first things you do is get as many facts about the problem as possible
2. When you are attempting to find a solution to a problem, you usually try to think of as many different ways to approach the problem as possible
3. When making decisions, you generally use a systematic method for judging and comparing alternatives
4. After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong

Appendix V

Table 14. Robust OLS Models Assessing TRDM on Delinquency

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	General Full Model	General Female	General Male		Minor Full Model	Minor Female	Minor Male		Major Full Model	Major Female	Major Male	
3	0.00915*	0.00474	0.0130	-	0.0280***	0.0258**	0.0283**	-	-0.00958*	0.0135**	-0.00557	*
	(0.00551)	(0.00609)	(0.00944)	-	(0.00888)	(0.0119)	(0.0133)	-	(0.00522)	(0.00669)	(0.00808)	-
Constant	0.857***	0.913***	0.835***	-	0.645***	0.638***	0.588***	-	0.367***	0.416***	0.257***	-
	(0.0569)	(0.0618)	(0.0950)	-	(0.0950)	(0.129)	(0.139)	-	(0.0709)	(0.101)	(0.0935)	-
				-				-				-
Observations	2,932	1,523	1,409	-	2,932	1,523	1,409	-	2,932	1,523	1,409	-
R-squared	0.857***	0.913***	0.835***	-	0.032	0.037	0.028	-	0.022	0.035	0.011	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between the third component of TRDM and Delinquency (general, minor, major), looking at full models and then broken down by gender. While this model was run with all control variables, they were not reported because we are specifically concerned with the individual components of TRDM

3 = When making decisions, you generally use a systematic method for judging and comparing alternatives

Model 4, 8, and 12 are testing for the equality of regression coefficients between males and females. * indicates significance

Table 15. Robust OLS Models Assessing TRDM on Delinquency

VARIABLES	(1) General Full Model	(2) General Female	(3) General Male	(4)	(5) Minor Full Model	(6) Minor Female	(7) Minor Male	(8)	(9) Major Full Model	(10) Major Female	(11) Major Male	(12)
4	0.00704	0.00406	0.0103	-	0.0303***	0.0388***	-0.0217	*	-0.00529	-0.0122*	0.00219	-
	(0.00560)	(0.00686)	(0.00909)	-	(0.00934)	(0.0127)	(0.0137)	-	(0.00518)	(0.00621)	(0.00828)	-
Constant	0.859***	0.914***	0.833***	-	0.668***	0.694***	0.590***	-	0.358***	0.416***	0.238**	-
	(0.0573)	(0.0646)	(0.0950)	-	(0.0961)	(0.131)	(0.142)	-	(0.0720)	(0.101)	(0.0980)	-
				-				-				-
Observations	2,932	1,523	1,409	-	2,932	1,523	1,409	-	2,932	1,523	1,409	-
R-squared	0.017	0.012	0.017	-	0.032	0.040	0.026	-	0.021	0.034	0.011	-

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Notes. This model is illustrating the relationship between the fourth component of TRDM and Delinquency (general, minor, major), looking at full models and then broken down by gender. While this model was run with all control variables, they were not reported because we are specifically concerned with the individual components of TRDM

4 = After carrying out a solution to a problem, you usually try to analyze what went right and what went wrong

Model 4, 8, and 12 are testing for the equality of regression coefficients between males and females. * indicates significance

References

Aguiar, R. (2013). Aggression post brain injury: a social cognitive perspective. *Social Care and Neurodisability*, *4*(2), 77–85.

Anwar, S., & Loughran, T. A. (2011). Testing a Bayesian learning theory of deterrence among serious juvenile offenders*. *Criminology*, *49*(3), 667–698.

Ariniello, L. (1998). Gender and the brain. *Brain Briefings, Society for Neuroscience*

Beatton, T., Kidd, M. P. and Machin, S. (2018) 'Gender crime convergence over twenty years: evidence from Australia.' European Economic Review, 109 pp. 275-288.

Bechara, A., Damasio, H., & Damasio, A. (2000). Emotion, Decision Making and the Orbitofrontal Cortex. *Cerebral Cortex*, *10*(3), 295–307.

Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*, *76*(2), 169–217.

Belknap J, Holsinger K, Dunn M. Understanding Incarcerated Girls: The Results of a Focus Group Study. The Prison Journal. 1997;77(4):381-404.

Bennett, S., Farrington, D. P., & Huesmann, L. R. (2005). Explaining gender differences in crime and violence: The importance of social cognitive skills. *Aggression and Violent Behavior*, *10*(3), 263–288.

Brower, M. C., & Price, B. H. (2001). Advances in neuropsychiatry: Neuropsychiatry of frontal lobe dysfunction in violent and criminal behaviour: a critical review. *Journal of Neurology, Neurosurgery & Psychiatry*, *71*(6), 720–726.

Byrnes JP (2002) The development of decision-making. J Adolesc Health 31:208–215

Camic C (1986) The matter of habit. Am J Sociol 91:1039–1087

Caplan, P. J., MacPherson, G. M., & Tobin, P. (1985). Do sex-related differences in spatial abilities exist? A multilevel critique with new data. *American Psychologist*, *40*(7), 786–799.

Chesney-Lind, M. (2010). Jailing "bad" girls: Girls' violence and trends in female incarceration. In M. Chesney-Lind & N. Jones (Eds.), Fighting for girls. New York: State University of New York Press, 57-79.

Chesney-Lind, M., & Okamoto, S. K. (2001). Gender matters: Patterns in girls' delinquency and gender responsive programming. *Journal of Forensic Psychology Practice*, *1*(3), 1–30.

Chesney-Lind, M., & Shelden, R. G. (1992). Girls, delinquency and juvenile justice. Belmont, CA: Wadsworth

Chess, S., & Thomas, A. (1984). *Origins and Evolution of Behavior Disorders: From Infancy to Early Adult Life by Stella Chess (1987–01-01)*. Harvard University Press.

Choy, O., Raine, A., Venables, P. H., & Farrington, D. P. (2017). Explaining The Gender Gap In Crime: The Role Of Heart Rate. *Criminology*, *55*(2), 465–487.

Damasio, A. R. (1994). Descartes' Error Emotion, Reason and the Human Brain. *GP Putnam's Sons, New York*.

Davis-Kean, P. E. (2005). The Influence of Parent Education and Family Income on Child Achievement: The Indirect Role of Parental Expectations and the Home Environment. *Journal of Family Psychology, 19*(2), 294–304.

Delaney, R., Strough, J. N., Parker, A. M., & Bruine de Bruin, W. (2015). Variations in decision-making profiles by age and gender: a cluster-analytic approach. *Personality and Individual Differences*, *85*, 19–24.

Clarke, R. V., & Cornish, D. B. (1985). Modeling Offenders' Decisions: A Framework for Research and Policy. *Crime and Justice*, *6*, 147–185.

Emirbayer M, Mische A (1998) What is agency? Am J Sociol 103:962–1023

Estrada, F., Bäckman, O., & Nilsson, A. (2015). The Darker Side of Equality? the Declining Gender Gap in Crime: Historical Trends and an Enhanced Analysis of Staggered Birth Cohorts. *British Journal of Criminology*, *56*(6), 1272–1290.

Etzioni, A. (1988). Normative-affective factors: toward a new decision-making model. *Journal of Economic Psychology*, *9*(2), 125–150.

Finley, N., and H. Grasmick. 1985. "Gender Roles and Social Control." Sociological Spectrum 5:317-25.

Fishbein, D. H. (1992). The Psychobiology of Female Aggression. *Criminal Justice and Behavior*, *19*(2), 99–126.

Ford, J. A., & Schroeder, R. D. (2010). Higher education and criminal offending over the life course. *Sociological Spectrum*, *31*(1), 32–58.

Friedman, J., Rosenbaum, D.P. Social control theory: The salience of components by age, gender, and type of crime. *J Quant Criminol* 4, 363–381 (1988).

Gilligan, C. (1977). In a different voice: Women's conceptions of self and of morality. *Harvard Educational Review, 47*(4), 481–517

Glenn, A. L., & Raine, A. (2008). The Neurobiology of Psychopathy. *Psychiatric Clinics of North America*, *31*(3), 463–475.

Gottfredson, M. R., & Hirschi, T. (1990). A general theory of crime. Stanford University Press.

Grasmick, H., B. Blackwell, and R. Bursik. 1993b. "Changes in the Sex Patterning of Perceived Threats of Sanctions." Law and Society Review 27:679-705.

Grasmick, H., and R. Bursik. 1990. "Conscience, Significant Others, and Rational Choice: Extending the Deterrence Model." Law and Society Review 24:837-61.

Grasmick, H., R. Bursik, and B. Arneklev. 1993a. "Reduction in Drunk Driving as a Response to Increased Threats of Shame,' Embarrassment, and Legal Sanctions." Criminology 31:41-67.

Grasmick, H., R. Bursik, and K. Kinsey. 1991. "Shame and Embarrassment as Deterrents to Noncompliance with the Law." Environment and Behavior 23:233-51.

Grasmick, H., C. Tittle, R. Bursik, and B. Arnekev. 1993c. "Testing the Core Implications of Gottfredson and Hirschi's General Theory

Gross, R. (1996). *Psychology: The Science of Mind and Behaviour* (3rd ed.). Hodder and Stoughton, London.

Heimer, K., & Coster, S. D. (1999). The Gendering Of Violent Delinquency*. *Criminology*, *37*(2), 277–318.

Hindelang, M. J., Hirschi, T., & Weis, J. G. (1979). Correlates of Delinquency: The Illusion of Discrepancy between Self-Report and Official Measures. *American Sociological Review*, *44*(6), 995.

Hirschi, T. (1969). *Causes of Delinquency*. Routledge.

Kahneman D (2003) Maps of bounded rationality: psychology for behavioral economics. Am Econ Rev 93:1449–1475

Katz, J. (1988). Seductions of crime: Moral and sensual attractions in doing evil. New York: Basic Books.

Lauritsen, J. L., Heimer, K., & Lynch, J. P. (2009). Trends In The Gender Gap In Violent Offending: New Evidence From The National Crime Victimization Survey. *Criminology*, *47*(2), 361–399.

Louderback, E. R., & Antonaccio, O. (2017). Exploring cognitive decision-making processes, computer-focused cyber deviance involvement and victimization: the role of thoughtfully reflective decision-making. *Journal of Research in Crime and Delinquency*, *54*(5), 639–679.

Maccoby, E. E., & Jacklin, C. N. (1974). *The psychology of sex differences.* Stanford University Press.

Maimon, D., Antonaccio, O., & French, M. T. (2012). Severe Sanctions, Easy Choice?: Investigating the Role of School Sanctions in Preventing Adolescent Violent Offending. *Criminology*, *50*(2), 495–524.

Mamayek, C., Loughran, T., & Paternoster, R. (2015b). Reason Taking the Reins From Impulsivity. *Journal of Contemporary Criminal Justice*, *31*(4), 426–448.

Mears, D. P., Ploeger, M., & Warr, M. (1998). Explaining the Gender Gap in Delinquency: Peer Influence and Moral Evaluations of Behavior. *Journal of Research in Crime and Delinquency*, *35*(3), 251–266.

Medin, D. L., & Ross, B. H. (1997). *Cognitive psychology* (2nd ed.). Harcourt Brace, Fort Worth, TX.

Miller, S., and S. Simpson. 1991. "Courtship Violence and Social Control: Does Gender Matter?" Law and Society Review 25:335-52.

Moffitt, T. E. (1990). The Neuropsychology of Juvenile Delinquency: A Critical Review. *Crime and Justice*, *12*, 99–169.

Moffitt, T. E. (1993). Adolescence-limited and life-course persistent antisocial behavior: A developmental taxonomy. Psychological Review, 100, 674 – 701.

Nagel, I. H., & Hagan, J. (1983). Gender and Crime: Offense Patterns and Criminal Court Sanctions. *Crime and Justice*, *4*, 91–144.

Odden, D. (2003). John J. McCarthy (2002). A thematic guide to Optimality Theory. (Research Surveys in Linguistics.) Cambridge: Cambridge University Press. Pp. xiii 317. *Phonology, 20*(1), 163-167.

Palermo, G. B., & Kocsis, R. N. (2005). Offender profiling: An introduction to the sociopsychological analysis of violent crime. Springfield, Illinois: Charles C Thomas Publisher.

Paternoster, R., Brame, R., Mazerolle, P., & Piquero, A. (1998). Using the correct statistical test for the equality of regression coefficients. *Criminology*, *36*(4), 859–866.

Paternoster, R., & Pogarsky, G. (2009b). Rational Choice, Agency and Thoughtfully Reflective Decision Making: The Short and Long-Term Consequences of Making Good Choices. *Journal of Quantitative Criminology*, *25*(2), 103–127.

Paternoster, R., Pogarsky, G., & Zimmerman, G. (2010). Thoughtfully Reflective Decision Making and the Accumulation of Capital: Bringing Choice Back In. *Journal of Quantitative Criminology*, *27*(1), 1–26.

Piquero, A. R., Paternoster, R., Pogarsky, G., & Loughran, T. (2011). Elaborating the individual difference component in deterrence theory. *Annual Review of Law and Social Science*, *7*(1), 335–360.

Pogarsky, G., & Herman, S. (2019). Nudging and the choice architecture of offending decisions. *Criminology & Public Policy*, *18*(4), 823–839.

Powell, M., & Ansic, D. (1997). Gender differences in risk behaviour in financial decision-making: An experimental analysis. *Journal of Economic Psychology, 18*(6), 605–628.

Prior, M., Smart, D., Sanson, A., & Oberklaid, F. (1993). Sex Differences in Psychological Adjustment from Infancy to 8 Years. *Journal of the American Academy of Child & Adolescent Psychiatry*, *32*(2), 291–305.

Reddy, K. J., Menon, K. R., & Hunjan, U. G. (2018). Neurobiological Aspects of Violent and Criminal Behaviour: Deficits in Frontal Lobe Function and Neurotransmitters. *International Journal of Criminal Justice Sciences (IJCJS)*, *13*(1), 44–54.

Ridgeway, C. L., & Smith-Lovin, L. (1999). The gender system and interaction. *Annual Review of Sociology, 25,* 191–216.

Rocque, M., Posick, C., Marshall, I. H., & Piquero, A. R. (2015). A comparative, cross-cultural criminal career analysis. *European Journal of Criminology*, *12*(4), 400–419.

Ross, R. R., & Fabiano, E. A. (1985). Time to think: A cognitive model of delinquency prevention and offender rehabilitation. Johnson City TN7 Institute of Social Sciences and Arts

Rowe, D. C., Vazsonyi, A. T., & Flannery, D. J. (1995). Sex differences in crime: Do means and within-sex variation have similar causes? *Journal of Research in Crime and Delinquency*, 32, 84 – 100.

Sampson, R., & Laub, J. (1993). Structural Variations in Juvenile Court Processing: Inequality, the Underclass, and Social Control. *Law & Society Review, 27*(2), 285-311.

Savolainen J, Applin S, Messner S, Hughes L, Lytle R and Kivivuori J (2017) Does the gender gap in delinquency vary by level of patriarchy? A cross-national comparative analysis. Criminology 55(4): 726–753

Scheff, T. J., & Retzinger, S. M. (1991). Emotions and Violence: Shame and Rage in Destructive Conflicts. Lexington, MA: Lexington Book

Schwartz, J., Steffensmeier, D. J., & Feldmeyer, B. (2009). Assessing Trends in Women's Violence via Data Triangulation: Arrests, Convictions, Incarcerations, and Victim Reports. *Social Problems*, *56*(3), 494–525.

Smith, G. (2014), 'Long-Term Trends in Female and Male Involvement in Crime', in R. Gartner and B. McCarhty, eds, The Oxford Handbook of Gender, Sex, and Crime, 139–57. Oxford University Press.

Smith, D. A., & Paternoster, R. (1987a). The Gender Gap in Theories of Deviance: Issues and Evidence. *Journal of Research in Crime and Delinquency*, *24*(2), 140–172.

Steffensmeier, D., & Allan, E. (1996). Gender and Crime: Toward a Gendered Theory of Female Offending. *Annual Review of Sociology*, *22*(1), 459–487.

Steffensmeier, D., Schwartz, J., Zhong, H., & Ackerman, J. (2006). An Assessment Of Recent Trends In Girls Violence Using Diverse Longitudinal Sources: Is The Gender Gap Closing? *Criminology*, *43*(2), 355–406.

Taylor, D. C. (1985). Development rate is the major differentiator between the sexes. *Behavioral and Brain Sciences*, *8*(3), 459–460.

Thaler, R. H., & Sunstein, C. R. (2009). Nudge: Improving decisions about health, wealth, and happiness. *New York: Penguin.*

Tibbetts, S. G., & Herz, D. C. (1996). Gender differences in factors of social control and rational choice. *Deviant Behavior*, *17*(2), 183–208.

Timmer, A., Antonaccio, O., & French, M. T. (2020). Hot or cool processing? adolescent decision-making and delinquency. *Justice Quarterly*, *(2020)*.

Tittle, C. R. (1980). *Sanctions and social deviance: the question of deterrence* (Ser. Praeger special studies). Praeger.

Turner, J. H., & Stets, J. E. (2005). *The sociology of emotions*. Cambridge University Press.

Walters, G. D. (2016). Measuring Low Self-Control and Reactive Criminal Thinking in the NLSY–Child Sample: One Construct or Two? *American Journal of Criminal Justice*, *42*(2), 314–328.

Wiatrowski, M., Griswold, D., & Roberts, M. (1981). Social Control Theory and Delinquency. *American Sociological Review, 46*(5), 525-541.